PRELIMINARY

USER'S MANUAL

BROAD SCAN HD

MODEL: BHD930-AG & BHD930-DG

BROAD SCAN SDI

MODEL: BSD830-AG & BSD830-DG

BROAD SCAN

MODEL: BSC730

ENGLISH

SAFETY INSTRUCTIONS

All of the safety and operating instructions should be read before the product is operated and should be retained for further reference. Please follow all of the warnings on this product and its operating instructions.

CAUTION:

WARNING: To prevent the risk of electric shock and fire, do not expose this device to rain, humidity or intense heat sources (such as heaters or direct sunlight). Slots and openings in the device are provided for ventilation and to avoid overheating. Make sure the device is never placed on or near a textile surface that could block the openings. Also keep away from excessive dust, vibrations and shocks.

POWER: Only use the power supply indicated on the device or on the power source. Devices equipped with a grounding plug should only be used with a grounding type outlet. In no way should this grounding be modified, avoided or suppressed.

POWER CORD: Use the On (I) / Off (O) switch to power On or Off devices equipped with that switch. All other devices should be plugged and unplugged from wall outlet. In both cases, please follow these instructions:

- The power cord of the device should be unplugged from the outlet when left unused for several days.
- To unplug the device, do not pull on the power cord but always on the plug itself.
- The outlet should always be near the device and easily accessible.
- Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them.

If the power supply cord is damaged, unplug the device. Using the device with a damaged power supply cord may expose you to electric shocks or other hazards. Verify the condition of the power supply cords once in a while. Contact your dealer or service center for replacement if damaged.

CONNECTIONS: All inputs and outputs (except for the power input) are TBTS defined under EN60950.

SERVICING: Do not attempt to service this product yourself by opening or removing covers and screws since it may expose you to electric shocks or other hazards. Refer all problems to qualified service personnel.

OPENINGS: Never push objects of any kind into this product through the openings. If liquids have been spilled or objects have fallen into the device, unplug it immediately and have it checked by a qualified technician.

INSTRUCTIONS DE SÉCURITÉ

Afin de mieux comprendre le fonctionnement de cet appareil nous vous conseillons de bien lire toutes les consignes de sécurité et de fonctionnement de l'appareil avant utilisation. Conserver les instructions de sécurité et de fonctionnement afin de pouvoir les consulter ultérieurement. Respecter toutes les consignes marquées dans la documentation, sur le produit et sur ce document.

ATTENTION : Afin de prévenir tout risque de choc électrique et d'incendie, ne pas exposer cet appareil à la pluie, à l'humidité et aux sources de chaleur intense.

INSTALLATION : Veillez à assurer une circulation d'air suffisante pour éviter toute surchauffe à l'intérieur de l'appareil. Ne placez pas l'appareil sur ou proximité de surface textile susceptible d'obstruer les orifices de ventilation. N'installez pas l'appareil à proximité de sources de chaleur comme un radiateur ou une bouche d'air chaud, ni dans un endroit exposé au rayonnement solaire direct, à des poussières excessives, à des vibrations ou à des chocs mécaniques. Ceci pourrait provoquer un mauvais fonctionnement et un accident.

ALIMENTATION : Ne faire fonctionner l'appareil qu'avec la source d'alimentation indiquée sur l'appareil ou sur son bloc alimentation. Pour les appareils équipés d'une alimentation principale avec fil de terre, ils doivent être obligatoirement connectés sur une source équipée d'une mise à la terre efficace. En aucun cas cette liaison de terre ne devra être modifiée, contournée ou supprimée.

CORDON D'ALIMENTATION : Pour les appareils équipés d'un interrupteur général (Marche I / Arrêt O), la mise sous tension et la mise hors tension se fait en actionnant cet interrupteur général. Pour les appareils sans interrupteur général, la mise sous tension et la mise hors tension se fait directement en connectant et déconnectant le cordon d'alimentation de la prise murale.
Dans les 2 cas ci-dessus appliquer les consignes suivantes :

- Débrancher le cordon d'alimentation de la prise murale si vous prévoyez de ne pas utiliser l'appareil pendant quelques jours ou plus.
- Pour débrancher le cordon, tirez le par la fiche. Ne tirez jamais sur le cordon proprement dit.
- La prise d'alimentation doit se trouver à proximité de l'appareil et être aisément accessible.
- Ne laissez pas tomber le cordon d'alimentation et ne posez pas d'objets lourds dessus.

Si le cordon d'alimentation est endommagé, débranchez le immédiatement de la prise murale. Il est dangereux de faire fonctionner cet appareil avec un cordon endommagé, un câble abîmé peut provoquer un risque d'incendie ou un choc électrique. Vérifier le câble d'alimentation de temps en temps. Contacter votre revendeur ou le service après vente pour un remplacement.

CONNEXIONS : Toutes les entrées et sorties (exceptée l'entrée secteur) sont de type TBTS (Très Basse Tension de Sécurité) définies selon EN 60950.

RÉPARATION ET MAINTENANCE : L'utilisateur ne doit en aucun cas essayer de procéder aux opérations de dépannage, car l'ouverture des appareils par retrait des capots ou de toutes autres pièces constituant les boîtiers ainsi que le dévissage des vis apparentes à l'extérieur, risque d'exposer l'utilisateur à des chocs électriques ou autres dangers. Contacter le service après vente ou votre revendeur ou s'adresser à un personnel qualifié uniquement.

OUVERTURES ET ORIFICES : Les appareils peuvent comporter des ouvertures (aération, fentes, etc...), veuillez ne jamais y introduire d'objets et ne jamais obstruer ses ouvertures. Si un liquide ou un objet pénètre à l'intérieur de l'appareil, débranchez immédiatement l'appareil et faites le contrôler par un personnel qualifié avant de le remettre en service.

ISTRUZIONI DI SICUREZZA

Allo scopo di capire meglio il funzionamento di questa apparecchiatura vi consigliamo di leggere bene tutti i consigli di sicurezza e di funzionamento prima dell'utilizzo. Conservare le istruzioni di sicurezza e di funzionamento al fine di poterle consultare ulteriormente. Seguire tutti i consigli indicati su questo manuale e sull'apparecchiatura.

ATTENZIONE : Al fine di prevenire qualsiasi rischio di shock elettrico e d'incendio, non esporre l'apparecchiatura a pioggia, umidità e a sorgenti di eccessivo calore.

INSTALLAZIONE : Assicuratevi che vi sia una sufficiente circolazione d'aria per evitare qualsiasi surriscaldamento all'interno dell'apparecchiatura. Non collocare l'apparecchiatura in prossimità o su superfici tessili suscettibili di ostruire il funzionamento della ventilazione. Non installate l'apparecchiatura in prossimità di sorgenti di calore come un radiatore o una fuoruscita d'aria calda, né in un posto esposto direttamente ai raggi del sole, a polvere eccessiva, a vibrazioni o a shock meccanici. Ció potrebbe provocare un erroneo funzionamento e un incidente.

ALIMENTAZIONE : Far funzionare l'apparecchiatura solo con la sorgente d'alimentazione indicata sull'apparecchiatura o sul suo alimentatore. Per le apparecchiature fornite di un'alimentazione principale con cavo di terra, queste devono essere obbligatoriamente collegate su una sorgente fornita di una efficiente messa a terra. In nessun caso questo collegamento potrà essere modificato, sostituito o eliminato.

CAVO DI ALIMENTAZIONE : Per le apparecchiature fornite di interruttore generale (Acceso I / Spento O), l'accensione e lo spegnimento dell'apparecchiatura si effettuano attraverso l'interruttore. Per le apparecchiature senza interruttore generale, l'accensione e lo spegnimento si effettuano direttamente inserendo o disinserendo la spina del cavo nella presa murale.
In entrambe i casi applicare i seguenti consigli :

- Disconnettere l'apparecchiatura dalla presa murale se si prevede di non utilizzarla per qualche giorno.
- Per disconnettere il cavo tirare facendo forza sul connettore.
- La presa d'alimentazione deve trovarsi in prossimità dell'apparecchiatura ed essere facilmente accessibile.
- Non far cadere il cavo di alimentazione né appoggiarci sopra degli oggetti pesanti.

Se il cavo di alimentazione é danneggiato, spegnere immediatamente l'apparecchiatura. E' pericoloso far funzionare questa apparecchiatura con un cavo di alimentazione danneggiato, un cavo graffiato puó provocare un rischio di incendio o uno shock elettrico. Verificare il cavo di alimentazione spesso. Contattare il vostro rivenditore o il servizio assistenza per una sostituzione.

CONNESSIONE : Tutti gli ingressi e le uscite (eccetto l'alimentazione) sono di tipo TBTS definite secondo EN 60950.

RIPARAZIONI E ASSISTENZA : L'utilizzatore non deve in nessun caso cercare di riparare l'apparecchiatura, poiché con l'apertura del coperchio metallico o di qualsiasi altro pezzo costituente la scatola metallica, nonché svitare le viti che appaiono esteriormente, poiché ció puó provocare all'utilizzatore un rischio di shock elettrico o altri rischi.

APERTURE DI VENTILAZIONE : Le apparecchiature possono comportare delle aperture di ventilazione, si prega di non introdurre mai oggetti o ostruire le sue fessure. Se un liquido o un oggetto penetra all'interno dell'apparecchiatura, disconnetterla e farla controllare da personale qualificato prima di rimetterla in servizio.

SICHERHEITSHINWEISE

Um den Betrieb dieses Geräts zu verstehen, raten wir Ihnen vor der Inbetriebnahme alle Sicherheits- und Betriebsanweisungen genau zu lesen. Diese Sicherheits- und Betriebsanweisungen für einen späteren Gebrauch sicher aufbewahren. Alle in den Unterlagen, an dem Gerät und hier angegebenen Sicherheitsanweisungen einhalten.

VORSICHT & WARNUNG

ACHTUNG: um jegliches Risiko eines Stromschlags oder Feuers zu vermeiden, das Gerät nicht Regen, Feuchtigkeit oder intensiven Wärmequellen aussetzen.

EINBAU: Eine ausreichende Luftzufuhr sicherstellen, um jegliche Überhitzung im Gerät zu vermeiden. Das Gerät nicht auf und in Nähe von Textiloberflächen, die Belüftungsöffnungen verschließen können, aufstellen. Das Gerät nicht in Nähe von Wärmequellen, wie z.B. Heizkörper oder Warmluftkappe, aufstellen und es nicht dem direkten Sonnenlicht, übermäßigem Staub, Vibrationen oder mechanischen Stößen aussetzen. Dies kann zu Betriebsstörungen und Unfällen führen.

STROMVERSORGUNG: Das Gerät nur mit der auf dem Gerät oder dem Netzteil angegebenen Netzspannung betreiben. Geräte mit geerdeter Hauptstromversorgung müssen an eine Stromquelle mit effizienter Erdung angeschlossen werden. Diese Erdung darf auf keinen Fall geändert, umgangen oder entfernt werden.

DEUTSCH

STROMKABEL: Für Geräte mit einem Hauptschalter (Ein/Aus) erfolgt die Stromversorgung und Unterbrechung mittels dieses Hauptschalters. Geräte ohne Hauptschalter werden durch das Einstecken oder Herausziehen des Steckers in den Wandanschluß ein- oder ausgeschaltet. Für beide Fälle gelten folgende Richtlinien:

- Den Stecker aus dem Wandanschluß herausziehen wenn Sie das Gerät mehrere Tage oder länger nicht benutzen.
- Das Kabel mittels dem Stecker herausziehen. Niemals am Stromkabel selbst ziehen.
- Die Steckdose muß sich in der Nähe des Geräts befinden und leicht zugänglich sein.
- Das Stromkabel nicht fallen lassen und keine schweren Gegenstände auf es stellen.

Wenn das Stromkabel beschädigt ist, das Gerät sofort abschalten. Es ist gefährlich das Gerät mit einem beschädigten Stromkabel zu betreiben; ein abgenutztes Kabel kann zu einem Feuer oder Stromschlag führen. Das Stromkabel regelmäßig untersuchen. Für den Ersatz, wenden Sie sich an Ihren Verkäufer oder Kundendienststelle.

ANSCHLÜSSE: Bei allen Ein- und Ausgängen (außer der Stromversorgung) handelt es sich, gemäß EN 60950, um Sicherheits- Kleinspannunganschlüsse.

REPARATUR UND WARTUNG : Der Benutzer darf keinesfalls versuchen das Gerät selbst zu reparieren, die Öffnung des Geräts durch Abnahme der Abdeckhaube oder jeglichen anderen Teils des Gehäuses sowie die Entfernung von außen sichtbaren Schrauben zu Stromschlägen oder anderen Gefahren für den Benutzer führen kann. Wenden Sie sich an Ihren Verkäufer, Ihre Kundendienststelle oder an qualifizierte Fachkräfte.

ÖFFNUNGEN UND MUNDUNGEN: Die Geräte können über Öffnungen verfügen (Belüftung, Schlitze, usw.). Niemals Gegenstände in die Öffnungen einführen oder die Öffnungen verschließen. Wenn eine Flüssigkeit oder ein Gegenstand in das Gerät gelangt, den Stecker herausziehen und es vor einer neuen Inbetriebnahme von qualifiziertem Fachpersonal überprüfen lassen.

INSTRUCCIONES DE SEGURIDAD

Para comprender mejor el funcionamiento de este aparato, le recomendamos que lea cuidadosamente todas las consignas de seguridad y de funcionamiento del aparato antes de usarlo. Conserve las instrucciones de seguridad y de funcionamiento para que pueda consultarlas posteriormente. Respete todas las consignas indicadas en la documentación, relacionadas con el producto y este documento.

PRECAUCIONES Y OBSERVACIONES

CUIDADO : Para prevenir cualquier riesgo de choque eléctrico y de incendio, no exponga este aparato a la lluvia, a la humedad ni a fuentes de calorintensas.

INSTALACIÓN : Cerciórese de que haya una circulación de aire suficiente para evitar cualquier sobrecalentamiento al interior del aparato. No coloque el aparato cerca ni sobre una superficie textil que pudiera obstruir los orificios de ventilación. No instale el aparato cerca de fuentes de calor como radiador o boca de aire caliente, ni en un lugar expuesto a los rayos solares directos o al polvo excesivo, a las vibraciones o a los choques mecánicos. Esto podría provocar su mal funcionamiento o un accidente.

ESPAÑOL

ALIMENTACIÓN : Ponga a funcionar el aparato únicamente con la fuente de alimentación que se indica en el aparato o en su bloque de alimentación. Los aparatos equipados con una alimentación principal con hilo de tierra deben estar conectados obligatoriamente a una fuente equipada con una puesta a tierra eficaz. Por ningún motivo este enlace de tierra deberá ser modificado, cambiado o suprimido.

CABLE DE ALIMENTACIÓN : Para los aparatos equipados con un interruptor general (Marcha I / Paro O), la puesta bajo tensión y la puesta fuera de tensión se hace accionando este interruptor general.. En los aparatos que no tienen interruptor general, la puesta bajo tensión y la puesta fuera de tensión se hace directamente conectando y desconectando el enchufe mural.
En ambos casos, se deberá respetar las siguientes consignas:

- Desconectar el aparato del enchufe mural si no piensa utilizarlo durante varios días.
- Para desconectar el cable, tire de la clavija. No tire nunca del cable propiamente dicho.
- El enchufe de alimentación debe estar cerca del aparato y ser de fácil acceso.
- No deje caer el cable de alimentación ni coloque objetos pesados encima de él.

Si el cable de alimentación sufriera algún daño, ponga el aparato inmediatamente fuera de tensión. Es peligroso hacer funcionar este aparato con un cable averiado, ya que un cable dañado puede provocar un incendio o un choque eléctrico. Verifique el estado del cable de alimentación de vez en cuando. Póngase en contacto con su distribuidor o con el servicio de posventa si necesita cambiarlo.

CONEXIONES : Todas las entradas y salidas (excepto la entrada del sector) son de tipo TBTS (Muy Baja Tensión de Seguridad) definidas según EN 60950.

REPARACIÓN Y MANTENIMIENTO : Por ningún motivo, el usuario deberá tratar de efectuar operaciones de reparación, ya que si abre los aparatos retirando el capó o cualquier otra pieza que forma parte de las cajas o si destornilla los tornillos aparentes exteriores, existe el riesgo de producirse una explosión, choques eléctricos o cualquier otro incidente. Contacte el servicio de posventa, a su distribuidor o dirigirse con personal cualificado únicamente.

ABERTURAS Y ORIFICIOS : Los aparatos pueden contener aberturas (aireación, ranuras, etc.). No introduzca allí ningún objeto ni obstruya nunca estas aberturas. Si un líquido o un objeto penetra al interior del aparato, desconéctelo y hágalo revisar por personal cualificado antes de ponerlo nuevamente en servicio.

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QUICK START GUIDE – BROAD SCAN (HD/SDI)

ANALOG WAY EDITION : 07/07

CONNECTIONS:

① Turn OFF all of your equipment before connecting.

② Connect the AC power supply cord to the BROAD SCAN and to an AC power outlet.

③ Connect your computer sources to the COMPUTER INPUT (HD15) connector or the DVI-D INPUT connector.

④ As required, connect a control monitor on the MONITOR OUT (HD15 or DVI-D) connector.

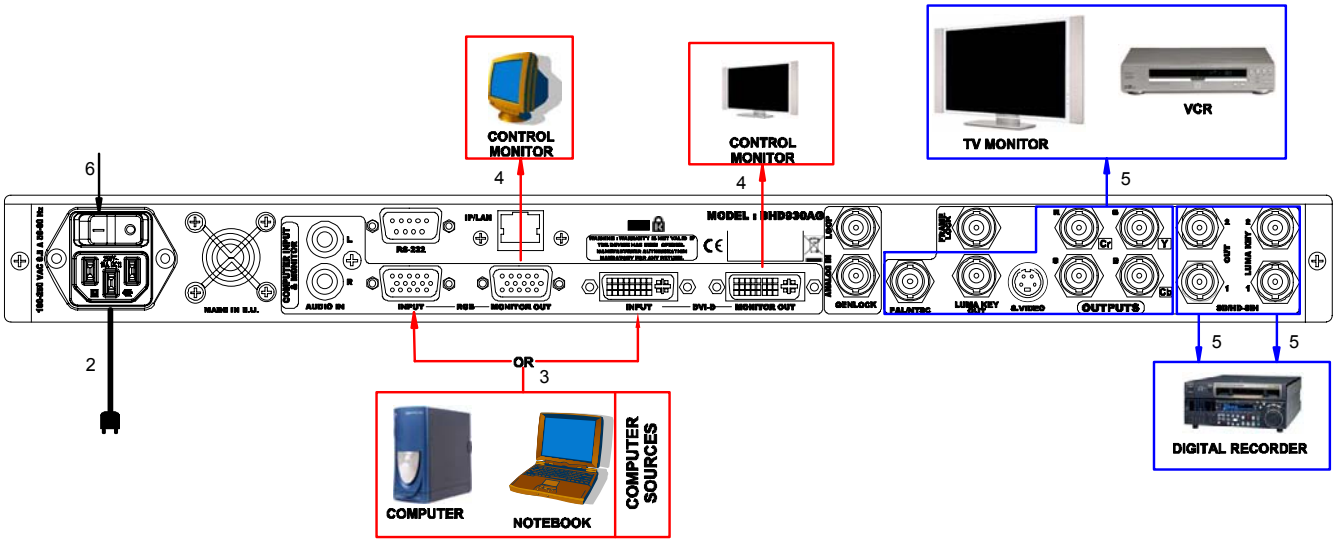
NOTE: The analog (RGB) MONITOR OUT is available only if the COMPUTER source is analog.
NOTE: The DVI-D MONITOR OUT is available only if the COMPUTER source is DVI-D.

⑤ Connect your display device (TV monitor, VCR...) to the outputs (analog or SDI*).

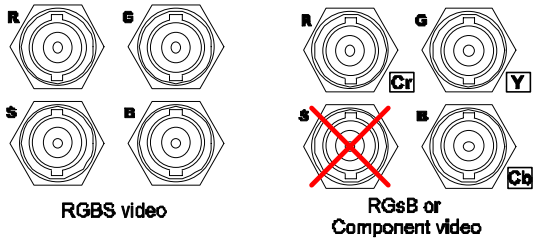
⑥ Turn ON the BROAD SCAN (rear panel switch). Then turn ON your input source and then your display devices.

* The SDI outputs are available on BHD930 & BSD830 models only.

- **Example of connection (Model: BHD930-AG):**



- **RGB/COMPONENT output connection:**



SETTINGS:

① We recommend resetting the BROAD SCAN to all of its default values, with the front panel display menu (**CONTROL ▸ default value ▸ yes**) before proceeding.

② Select the auto-setting menu with the front panel display menu (**INPUT ▸ Auto setting**) and activate this function with ENTER. This function detects automatically the input type of the source connected to the input connectors (DVI & RGB). Then the device performs an auto-centering function.

③ Select the Input status menu **(INPUT ▸ Input status**) to verify the correct detection of the type and format of your input source. If a wrong message is displayed, select manually the type of your input source (**INPUT ▸ Input Type**).

④ Select the output format and rate (**OUTPUT ▸ Format**).

⑤ For SDTV output format (PAL, NTSC) select the type of the **RGB/YCrCb output** (**OUTPUT ▸ Type**).

⑥ Perform the needed image adjustments, available in the **IMAGE** menu.

BROAD SCAN (HD/SDI)

CHAPTER 1 : INTRODUCTION

1-1. ACCESSORIES SUPPLIED

- 1 BROAD SCAN or BROAD SCAN SDI or BROAD SCAN HD
- 1 AC mains cable.
- 1 CD-ROM (Remote Control Software).
- 1 User's Manual.

1-2. BROAD SCAN HD GENERAL INFORMATION

Broad Scan HD by Analog Way is a Broadcast and Professional Computer to Video and High Definition TV Scan Converter. Fitted with Digital DVI and Analog RGB input, it converts Workstation, PC or Mac graphic images up to 1600x1200 @ 60Hz (1920x1200 RB) into Video or HDTV. Each computer input has its own monitor loopthrough out for the connection of a control display. Output signal can be both analog and digital thus Broad Scan HD can provide a full Digital signal processing path from the input to the output.

Broad Scan HD features a powerful broadcast Genlock. Two versions of the Broad Scan HD offer either a Digital HD/SD-SDI Genlock (Model BHD930-DG) or an Analog HD Black or Black Burst Genlock (Model BHD930-AG). Genlock input is fitted with a loop through output allowing chaining devices. The user can adjust phase and subcarrier delay according to the specific installation requirements. HD output formats can also be genlocked with a SDTV Black Burst signal. All Genlock timings meet broadcast ITU/SMPTE standards.

Broad Scan HD supports many Output formats as listed below:

HDTV

- 720p @ 60, 59.94 & 50 Hz (SMPTE 296M),
- 1080i @ 60, 59.94 & 50 Hz (SMPTE 274M),
- 1035i @ 60 Hz & 59.94 Hz (SMPTE 260M),
- 1080sF @ 30, 29.97 & 25 Hz (RP2H/SMPTE 274M),
- 1080p @ 30, 29.97, 25, 24, 23.98 Hz (RP2H/SMPTE 274M).

SDTV

- NTSC – 525i @ 60 & 59.94 Hz – 15.735 kHz - ITU / RS170-A
- PAL– 625i @ 50 Hz – 15.625 kHz – CCIR

Broad Scan HD outputs different signals at the same time in one selected output format:

- **In HDTV**: Two HD-SDI and one HD-YUV 3 level sync signals are available simultaneously.
- **In SDTV** NTSC/PAL: Two SDI, one YUV or RGB, one S.Video and one Composite Video signals are available simultaneously.

Broad Scan HD also outputs a Luma Key signal in both Digital and Analog format. Luma key is at the same format as the output and is perfectly synchronized. In addition, a Frame Lock output allows synchronizing external device frame rate such as some graphic cards.

Broad Scan HD features real time conversion with high performance Image Processing. User adjustments offer an Anti-Flicker filter to significantly reduce flickering of the interlaced HD/SD-TV outputs, as well as 2D Sharpness, RGB level and Black level. It converts single wire computer type signal into black and white video image just by setting a menu. The state of the art high speed hardware FPGA allows aspect ratio control and a wide range linear or nonlinear zoom up to 1000%. In addition, a new "zoom finder" is provided to preview the actual part of the picture to be zoomed (H, V and H&V simultaneously). Broad Scan HD also offers a Frame Memory to store a full screen image that can be displayed at any time, as well as 1 animated or 4 still logos.

Broad Scan HD allows embedding analog audio Stereo signal into the HD/SD-SDI signal (fs = 48 kHz @ 20/24 bits), with matched A/V delay.

Broad Scan HD is designed to be User Friendly thanks to many direct access functions such as Freeze, Frame, Under/Over scan, Aspect Ratio, Zoom position and size. It also provides easy to use and efficient menus on a clear bright blue LCD screen. LCD continuously displays Input and Output status during operations.

Broad Scan HD includes Computer input format memory: Up to 16 user presets are stored in the machine corresponding to 16 different input formats. The exact adjustments of the frequently used formats are instantly recalled, which makes the Broad Scan HD ideal and very useful for multi-computer applications or rental.

1-3. BROAD SCAN SDI INFORMATION

Broad Scan SDI by Analog Way is a Broadcast and Professional Computer to Video Scan Converter. Fitted with Digital DVI and Analog RGB input, it converts Workstation, PC or Mac graphic images up to1600x1200 @ 60Hz (1920x1200 RB) into NTSC or PAL Video.

Each Computer input has its own monitor loopthrough output for the connection of a control display. Output signal can be both Analog and Digital, thus Broad Scan SDI can provide a full Digital signal processing path from the input to the output.

Broad Scan SDI features a powerful Broadcast Genlock. Two versions of the Broad Scan SDI offer either a Digital SDI Genlock (ModelBSD830-DG) or an Analog Black Burst Genlock(Model BSD830-AG). Genlock input is fitted with a loop through output allowing to daisy chain devices. The user can adjust phase and subcarrier delay according to specific installation requirements. All Genlock timings meet broadcast ITU/SMPTE standards.

Broad Scan SDI output formats are:

- NTSC – 525i @ 60 & 59.94 Hz – 15.735 kHz - ITU / RS170-A,
- PAL– 625i @ 50 Hz – 15.625 kHz – CCIR.

Broad Scan SDI outputs different signals at the same time in one selected output format NTSC or PAL: Two 10 Bits SDI, one YUV or RGB, one S.Video and one Composite Video signals are available simultaneously.

Broad Scan SDI also outputs Luma Key signal in both Digital and Analog signals. The Luma key signal comes in the same format as the output and perfectly timed. In addition, a Frame Lock output allows synchronizing an external device frame rate such as a graphic card.

Broad Scan SDI features real time conversion with high performance Image Processing. User adjustments offer an Anti-Flicker filter to significantly reduce flickering of the interlaced TV out-puts, as well as 2D Sharpness, RGB level and Black level. It converts single wire Computer type signal into black and white Video image just by setting a menu. The state of the art high speed hardware FPGA allows aspect ratio control and a wide linear or non linear zoom capability up to 1000%. In addition, a new highlighted “zoom finder” is provided to preview the actual part of the picture to be zoomed (H, V and H&V simultaneously). Broad Scan SDI also offers a Frame Memory to store a full screen image that can be displayed at any time as well as 1 animated or 4 still logos.

Broad Scan SDI allows embedding Analog Audio Stereo input signal into the SDI output signal (fs=48 kHz @ 20/24 bits), with matched A/V delay, adjustable level, balance and mute.

Broad Scan SDI is designed to be User Friendly thanks to many direct access functions such as Freeze, Frame, Under/Over scan, Aspect Ratio, Zoom position and size. It also has easy to use and efficient menus on a clear bright blue LCD screen. LCD continuously displays Input and Output status during operation.

Broad Scan SDI includes Computer input format memory: Up to 16 user presets are stored in the device corresponding to 16 different input for-mats. The exact adjustments of the frequently used formats are instantly recalled which makes the Broad Scan SDI ideal and very useful for multi-computer applications or rental.

1-4. BROAD SCAN INFORMATION

Broad Scan by Analog Way is a Broadcast and Professional Computer to Video Scan Converter. Fitted with Digital DVI and Analog RGB input, it converts Workstation, PC or Mac graphic images up to1600x1200 @ 60Hz (1920x1200 RB) into NTSC or PAL video. Each computer input has its own monitor loop through output for the connection of a control display.

Broad Scan features a powerful broadcast Genlock through a NTSC or PAL Black Burst. Genlock input is fitted with a loop through output allowing to daisy chain devices. The user can adjust phase and subcarrier delay according to a specific installation requirements. All Genlock timings meet broadcast ITU/SMPTE standards.

Broad Scan output formats are:

- NTSC – 525i @ 60 & 59.94 Hz – 15.735 kHz - ITU / RS170-A
- PAL– 625i @ 50 Hz – 15.625 kHz – CCIR

Broad Scan outputs different signals at the same time in one selected output format NTSC or PAL: one YUV or RGB, one S.Video and one Composite Video signals are available simultaneously.

Broad Scan also outputs Luma Key signal. The Luma key signal comes in the same format as the output and perfectly timed. In addition, a Frame Lock output allows synchronizing an external device frame rate such as a graphic card.

Broad Scan features real time conversion with high performance Image Processing. User adjustments offer an Anti-Flicker filter to significantly reduce flickering of the interlaced TV outputs, as well as 2D Sharpness, RGB level and Black level. It converts single wire computer type signal into black and white video image just by setting a menu. The state of the art high speed hardware FPGA allows aspect ratio control and a wide linear or non linear zoom capability up to1000%. In addition, a new highlighted "zoom finder" is provided to preview the actual part of the picture to be zoomed (H, V and H&V simultaneously).

Broad Scan is designed to be User Friendly thanks to many direct access functions such as Freeze, Black, Under/Over scan, Aspect Ratio, Zoom position and size. It also has easy to use and efficient menus on a clear bright blue LCD screen. LCD continuously displays Input and Output status during operation.

Broad Scan includes Computer input format memory: Up to 16 user presets are stored in the device corresponding to 16 different input for-mats. The exact adjustments of the frequently used formats are instantly recalled which makes the Broad Scan ideal and very useful for multi-computer applications or rental.

1-5. DEVICES & OPTIONS REFERENCES

REFERENCE	DESIGNATION
BHD930-AG	BROAD SCAN HD with analog genlock.
BHD930-DG	BROAD SCAN HD with digital genlock.
BSD830-AG	BROAD SCAN SDI with analog genlock.
BSD830-DG	BROAD SCAN SDI with digital genlock.
BSC730	BROAD SCAN.
OPT-LAN	Optional IP/LAN communication port.

1-6. INSTALLATION

IMPORTANT: **Please read all the safety instructions (pages 2 to 4) before starting.**

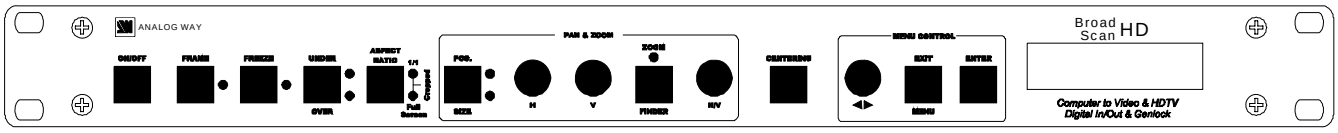
- *Table Top Mounting* The devices can be used directly on a table: they are equipped with 4 plastic feet.
- *Rack Mounting:* The devices are compatibles with a 19" enclosure. To install the device into a 19" rack: Attach the device to the rack by using 4 screws in the front panel holes (screws are not included). Connect all of the cables to the devices and attach them to the rack with some tie wraps.

IMPORTANT:

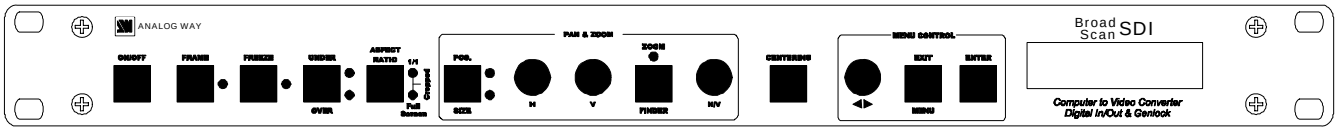
- **The openings in the rear and side panels are for cooling. Do not cover these openings.**
- **Be sure that no weight is added onto the device in excess of 2 kg (4.4 lbs.).**
- **The maximum ambient operating temperature must not exceed 40°C (104°F).**
- **The rack and all mounted equipment in it must be reliably grounded to national and local electrical codes.**

1-7. BROAD SCAN HD (BHD930) & BROAD SCAN SDI (BSD830) FRONT PANEL DESCRIPTION

- **BROAD SCAN HD**



- **BROAD SCAN SDI**



ON / OFF: Switch ON or OFF the device (Long push).

FRAME: Frame selection. Display the stored frame onto the output.

FREEZE: Freezes the displayed output.

UNDER/OVER: Image mode selection.

ASPECT RATIO: Aspect ratio selection.

- **1/1:** The image and aspect ratio of the source are preserved.
- **Cropped:** The image is resized and the borders are cut to fill full the screen (The aspect ratio is preserved).
- **Full Screen:** The image is stretched to fill full the screen without cutting the borders (The aspect ratio is not preserved).

PAN & ZOOM

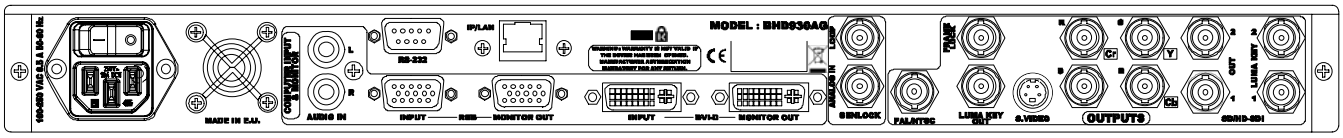
- **POS. SIZE:** Position or Size mode selection.
- **H:** Horizontal image adjustment.
- **V:** Vertical image adjustment.
- **ZOOM:** Zoom mode selection (short push)
- **FINDER:** Zoom finder (long push – blinking LED) : Preview of the actual part of the picture to be zoomed.
- **H/V:** Horizontal & Vertical (simultaneously) image adjustment.

CENTERING: Image automatic centering.

MENU CONTROL

- **◄ ►** Allows scrolling thru the different menus.
- **ENTER:** Validates a selected item.
- **EXIT MENU:** Allows to exit from a LCD menu.

1-8. BROAD SCAN HD (BHD930) REAR PANEL DESCRIPTION



O / I: AC power switch (O = OFF, I = ON).

POWER: Standard IEC connector (100-250 VAC, 0.5A, 50-60Hz automatic).

RS-232: RS-232 communication port on a DB9 female connector.

IP/LAN: Ethernet communication port on a RJ45 connector (optional).

COMPUTER INPUT & MONITOR

AUDIO IN: Analog stereo audio input on 2x RCA female connector (L = Left, R = Right).

RGB INPUT: Analog computer input on HD15 female connector.

RGB MONITOR OUT: Analog computer output (loop-through) on HD15 female connector.

DVI-D INPUT: Digital computer input on DVI-D female connector.

DVI-D MONITOR OUT: Digital computer output (loop-through) on DVI-D female connector.

ANALOG GENLOCK (Available on BHD930-AG model only).

INPUT: Analog GENLOCK input (Analog HD Black and Black burst signals).

LOOP OUT: GENLOCK output (loop-through).

DIGITAL GENLOCK (Available on BHD930-DG model only).

INPUT: Digital GENLOCK input (SD-SDI & HD-SDI signals).

LOOP OUT: GENLOCK output (loop-through).

VIDEO OUTPUTS

PAL/NTSC: Composite video output (on 1 BNC connector).

LUMA KEY: Luma key video output (on a BNC connector).

FRAME LOCK: Frame lock output (on a BNC connector). This output allows synchronizing external frame rate such as some graphic card.

S.VIDEO: S.VIDEO output (4-pin mini DIN connector).

R, G, B, S: RGB/S or RGsB video outputs (on 3 or 4 BNC connectors).

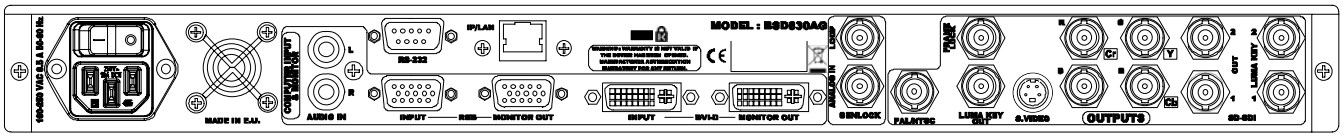
Cr, Y, Cb: Component video (SD-YUV & HD-YUV) output (on 3 BNC connectors).

SD/HD-SDI

OUT 1 & 2: 2 SD/HD-SDI outputs (on BNC connectors)

LUMA KEY 1 & 2: 2 SD/HD-SDI luma key outputs (on BNC connectors)

1-9. BROAD SCAN SDI (BSD830) REAR PANEL DESCRIPTION



O / I: AC power switch (O = OFF, I = ON).

POWER: Standard IEC connector (100-250 VAC, 0.5A, 50-60Hz automatic).

RS-232: RS-232 communication port on a DB9 female connector.

IP/LAN: Ethernet communication port on a RJ45 connector (optional).

COMPUTER INPUT & MONITOR

AUDIO IN: Analog stereo audio input on 2x RCA female connector (L = Left, R = Right).

RGB INPUT: Analog computer input on HD15 female connector.

RGB MONITOR OUT: Analog computer output (loop-through) on HD15 female connector.

DVI-D INPUT: Digital computer input on DVI-D female connector.

DVI-D MONITOR OUT: Digital computer output (loop-through) on DVI-D female connector.

ANALOG GENLOCK (Available on BSD830-AG model only).

INPUT: Analog GENLOCK input (Black burst signals).

LOOP OUT: GENLOCK output (loop-through).

DIGITAL GENLOCK (Available on BSD830-DG model only).

INPUT: Digital GENLOCK input (SD-SDI signals).

LOOP OUT: GENLOCK output (loop-through).

VIDEO OUTPUTS

PAL/NTSC: Composite video output (on 1 BNC connector).

LUMA KEY: Luma key video output (on a BNC connector).

FRAME LOCK: Frame lock output (on a BNC connector). This output allows synchronizing external frame rate such as some graphic card.

S.VIDEO: S.VIDEO output (4-pin mini DIN connector).

R, G, B, S: RGB/S or RGsB video outputs (on 3 or 4 BNC connectors).

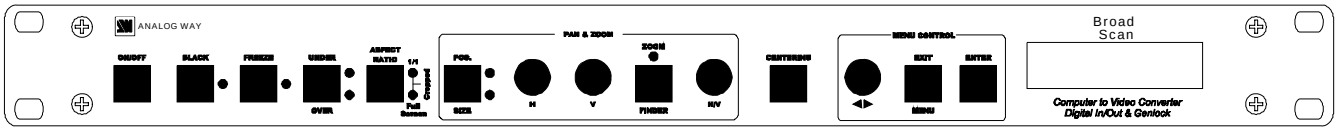
Cr, Y, Cb: Component video (SD-YUV) output (on 3 BNC connectors).

SD-SDI

OUT 1 & 2: 2 SD-SDI outputs (on BNC connectors).

LUMA KEY 1 & 2: 2 SD-SDI luma key outputs (on BNC connectors).

1-10. BROAD SCAN (BSC730) FRONT PANEL DESCRIPTION



ON / OFF: Switch ON or OFF the device (Long push).

BLACK: Allows displaying a black screen onto the output.

FREEZE: Freezes the displayed output.

UNDER/OVER: Image mode selection.

ASPECT RATIO: Aspect ratio selection.

- **1/1:** The image and aspect ratio of the source are preserved.
- **Cropped:** The image is resized and the borders are cut to fill full the screen (The aspect ratio is preserved).
- **Full Screen:** The image is stretched to fill full the screen without cutting the borders (The aspect ratio is not preserved).

PAN & ZOOM

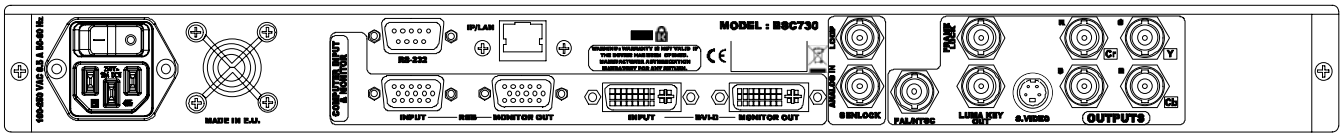
- **POS. SIZE:** Position or Size mode selection.
- **H:** Horizontal image adjustment.
- **V:** Vertical image adjustment.
- **ZOOM:** Zoom mode selection (short push)
- **FINDER:** Zoom finder (long push– blinking LED) : Preview of the actual part of the picture to be zoomed.
- **H/V:** Horizontal & Vertical (simultaneously) image adjustment.

CENTERING: Image automatic centering.

MENU CONTROL

- **◄ ►** Allows scrolling thru the different menus.
- **ENTER:** Validates a selected item.
- **EXIT MENU:** Allows to exit from a LCD menu.

1-11. BROAD SCAN (BSC730) REAR PANEL DESCRIPTION



O / I: AC power switch (O = OFF, I = ON).

POWER: Standard IEC connector (100-250 VAC, 0.5A, 50-60Hz automatic).

RS-232: RS-232 communication port on a DB9 female connector.

IP/LAN: Ethernet communication port on a RJ45 connector (optional).

COMPUTER INPUT & MONITOR

RGB INPUT: Analog computer input on HD15 female connector.

RGB MONITOR OUT: Analog computer output (loop-through) on HD15 female connector.

DVI-D INPUT: Digital computer input on DVI-D female connector.

DVI-D MONITOR OUT: Digital computer output (loop-through) on DVI-D female connector.

ANALOG GENLOCK

INPUT: Analog GENLOCK input (Black burst signals).

LOOP OUT: GENLOCK output (loop-through).

VIDEO OUTPUTS

PAL/NTSC: Composite video output (on 1 BNC connector).

LUMA KEY: Luma key video output (on a BNC connector).

FRAME LOCK: Frame lock output (on a BNC connector). This output allows synchronizing external frame rate such as some graphic card.

S.VIDEO: S.VIDEO output (4-pin mini DIN connector).

R, G, B, S: RGB/S or RGsB video outputs (on 3 or 4 BNC connectors).

Cr, Y, Cb: Component video (SD-YUV) output (on 3 BNC connectors).

CHAPTER 2 : STARTING

2-1. BROAD SCAN CONNECTIONS

① Turn OFF all of your equipment before connecting.

② Connect the AC power supply cord to the BROAD SCAN and to an AC power outlet.

③ Connect your computer sources to the COMPUTER INPUT (HD15) connector or the DVI-D INPUT connector.

④ As required, connect a control monitor on the MONITOR OUT (HD15 or DVI-D) connector.

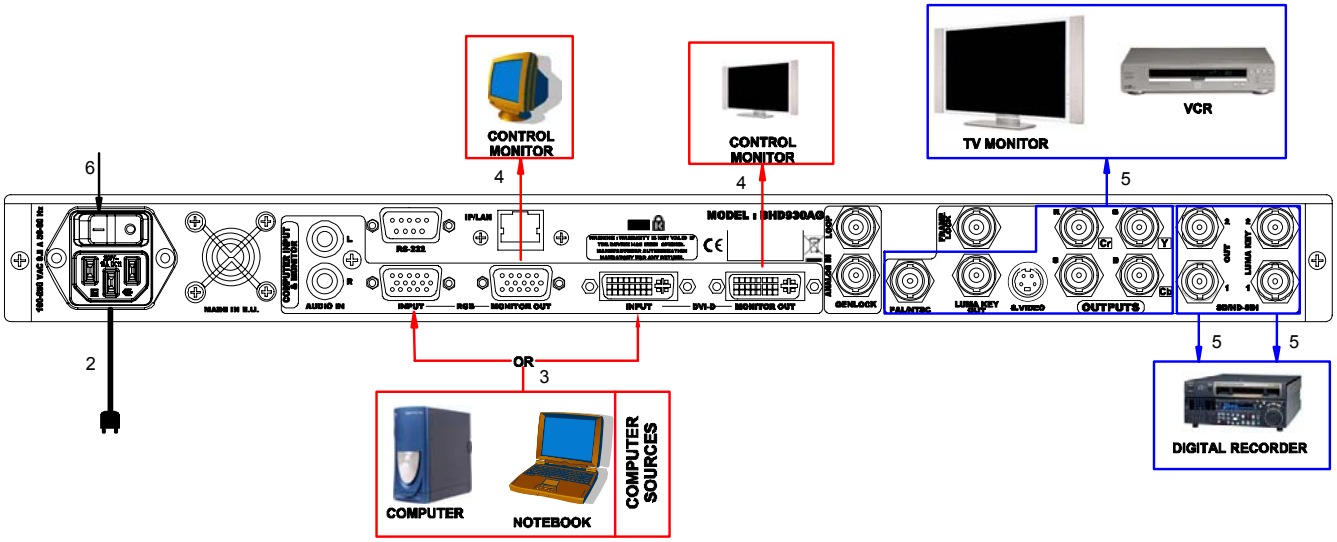
NOTE: The analog (RGB) MONITOR OUT is available only if the COMPUTER source is analog.
NOTE: The DVI-D MONITOR OUT is available only if the COMPUTER source is DVI-D.

⑤ Connect your display device (TV monitor, VCR...) to the outputs (analog or SDI*).

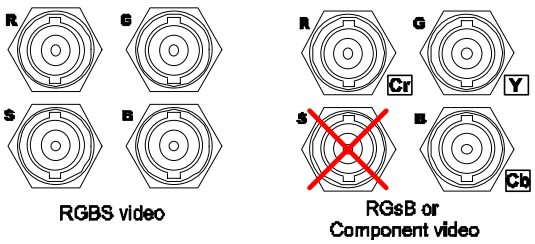
⑥ Turn ON the BROAD SCAN (rear panel switch). Then turn ON your input source and then your display devices.

* The SDI outputs are available on BHD930 & BSD830 models only.

- **Example of connection (Model: BHD930-AG):**



- **RGB/COMPONENT output connection:**



2-2. SETTINGS

① We recommend resetting the BROAD SCAN to all of its default values, with the front panel display menu (**CONTROL ▸ default value ▸ yes**) before proceeding.

② Select the auto-setting menu with the front panel display menu (**INPUT ▸ Auto setting**) and activate this function with ENTER. This function detects automatically the input type of the source connected to the input connectors (DVI & RGB). Then the device performs an auto-centering function.

③ Select the Input status menu **(INPUT ▸ Input status**) to verify the correct detection of the type and format of your input source. If a wrong message is displayed, select manually the type of your input source (**INPUT ▸ Input Type**).

④ Select the output format and rate (**OUTPUT ▸ Format**).

⑤ For SDTV output format (PAL, NTSC) select the type of the RGB/YCrCb output (**OUTPUT ▸ Type**).

2-3. IMAGE ADJUSTMENTS

① Select the UNDER/OVER scan mode with the front panel button.

② Adjust the position & size of the image with the front panel buttons.

③ Adjust the level of anti-flicker with the panel display menu (**IMAGE ▸ Flicker filter**).

④ Perform the others adjustments, available in the Image menu.

2-4. EMBEDDED AUDIO MODE

The embedded audio menu is available for BHD930 & BSD830 models only. The device allows embedding analog audio stereo signal into the HD/SD-SDI output signals.

① Connect an analog audio stereo source to the AUDIO IN (L /R) connector.

② Activate the Embedded audio mode with the front panel display menu (**AUDIO ▸ Embed. ▸ ON**).

③ Adjust the audio level with the front panel display menu (**AUDIO ▸ Level**).

④ Adjust the audio balance with the front panel display menu (**AUDIO ▸ Balance**).

CHAPTER 3 : USING FRAME STORE AND LOGO INSERTION (BHD930 & BSD830)

3-1. LOGO INSERTION

This function allows storing up to 4 static logos & 1 animated logo in order to incrust them into the displayed image.

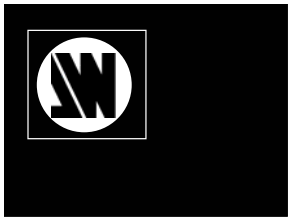
- **HOW TO STORE A STATIC LOGO:**
  - ① Connect the source of the logo to be stored to the input of the BROAD SCAN. Perform and auto-setting to display it onto the output.
  - ② Select the **Record logo** mode (**LOGOS/FRAME ▸ Record logo**): the device displays a white rectangle corresponding to the logo selection area onto the output. Then adjust the position and size of the logo selection area with the menu functions (**LOGOS/FRAME ▸ Record logo ▸ Position – Size**).
    NOTE: The logo area is limited to an eighth (1/8) of the displayed area.
  - ③ As required, adjust the **luma key** level (**LOGOS/FRAME ▸ Record logo ▸ Luma key level ▸ Black or white**). This function allows to "erase" the darkest or brightest portions of the logo selection area in order to make special logo contour. Otherwise set the **luma key** level to zero.
    NOTE: You can change the color of the "erased portions" of the logo (**LOGOS/FRAME ▸ Record logo ▸ Cut Out Color**).
  - ④ Store the logo into a memory (**LOGOS/FRAME ▸ Record logo ▸ Store**). The memorization of the logo starts and will take about few seconds.

- **HOW TO STORE AN ANIMATED LOGO:**
  - ① Connect the source of the logo to be stored to the input of the BROAD SCAN. Perform and auto-setting to display it onto the output.
  - ② Select the **Record logo** mode (**LOGOS/FRAME ▸ Record Anim**): the device displays a white rectangle corresponding to the logo selection area onto the output. Then adjust the position and size of the logo selection area with the menu functions (**LOGOS/FRAME ▸ Record Anim ▸ Position – Size**).
    NOTE: The logo area is limited to an eighth (1/8) of the displayed area.
  - ③ As required, adjust the **luma key** level (**LOGOS/FRAME ▸ Record Anim ▸ Luma key level ▸ Black or white**). This function allows to "erase" the darkest or brightest portions of the logo selection area in order to make special logo contour. Otherwise set the **luma key** level to zero.
    NOTE: You can change the color of the "erased portions" of the logo (**LOGOS/FRAME ▸ Record Anim ▸ Cut Out Color**).
  - ④ Select the needed recording time (**LOGOS/FRAME ▸ Record Anim ▸ Recording time**).
  - ⑤ Store the logo into the memory (**LOGOS/FRAME ▸ Record Anim ▸ Store**). The memorization of the logo starts and will take about few seconds.

- **HOW TO DISPLAY ON AND ADJUST A LOGO:**
  - ① Select the needed logo in the logo menu (**LOGOS/FRAME ▸ Logo ▸ Logo x or Logo animated)** and validate with **ENTER**. The logo is also displayed onto the output.
  - ② Then adjust the logo position with menu **(LOGOS/FRAME ▸ Logo ▸ Logo x ▸ Position)**.
  - ③ As required adjust the logo transparency with the menu **(LOGOS/FRAME ▸ Logo ▸ Logo x ▸ Transparency)**.

- **HOW TO DISPLAY OFF A LOGO:**
  Select Logo OFF in the logo menu (**LOGOS/FRAME ▸ Logo ▸ Logo OFF).**

- **EXAMPLE OF LOGO INSERTION:**



Logo source
(white border = logo area)

Input source

Video source with inserted logo
(logo made with luma key)

3-2. USING THE FRAME STORE

This function allows memorizing a frame (an image) in order to display it at any time during the show.

- **HOW TO STORE A FRAME:**
  ① Connect the source of the frame to be stored to the input of the BROAD SCAN. Perform and auto-setting to display it onto the output.

  ② Select the **Record frame** mode (**LOGOS/FRAME ▸ Record Frame**): the device displays a white rectangle corresponding to the frame selection area onto the output. Then adjust the position and size of the frame selection area with the menu functions (**LOGOS/FRAME ▸ Record Frame ▸ Position – Size**).

  ③ Store the frame (**LOGOS/FRAME ▸ Record Frame ▸ Store**). The memorization starts and will take about 30 seconds.

- **HOW TO DISPLAY THE FRAME:**
  The FRAME can be displayed either by the front panel FRAME push button or either by the menu **(LOGOS/FRAME ▸ Frame ON)**. Select OFF to switch OFF the frame.

  NOTE: The frame can be automatically displayed when the sync of the selected input is not anymore detected. Select **(CONTROL ▸ Auto frame ON**) to activate this function.

CHAPTER 4 : FRONT PANEL DISPLAY MENU DESCRIPTION

4-1. INTRODUCTION

The front panel display menu presents 2 modes: the STATUS MODE and the CONTROL MODE.

- The STATUS MODE indicates the input and output status of the device.
- The CONTROL MODE allows selecting and adjusting the parameters of the device.

4-2. CONTROL BUTTONS

The front panel display is controlled by 2 buttons and 1 knob:

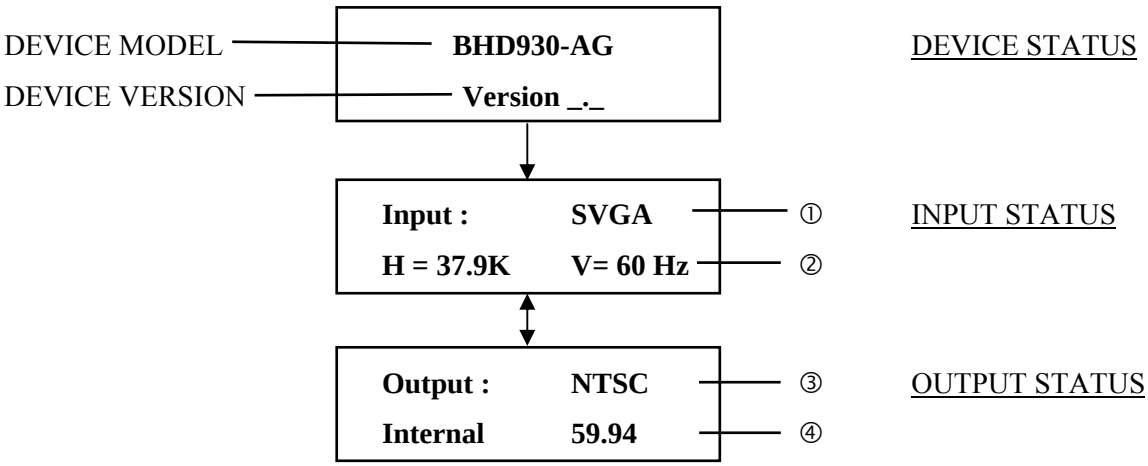
◀ ▶ knob:
- In the CONTROL MODE, turn this knob to scroll thru the different menus.

ENTER button:
- From the STATUS MODE, press this button to enter in the CONTROL MODE.
- From the CONTROL MODE, press this button to confirm a selected item.

EXIT / MENU button:
- From the STATUS MODE, press this button to enter in the CONTROL MODE.
- From the CONTROL MODE, press this button to:
  - return to the previous menu without safeguarding the selection.
  - return to the STATUS MODE (press several times).

4-3. STATUS MODE

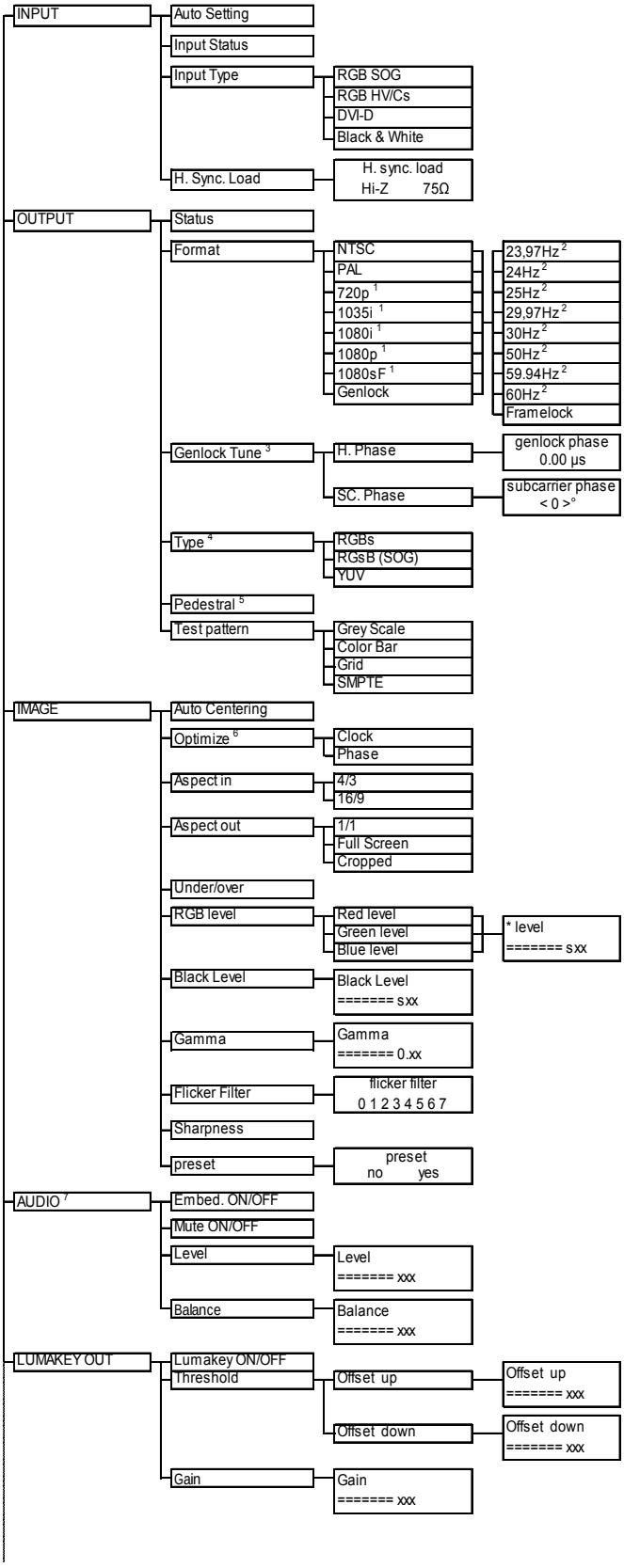
When switching ON, the front panel display shows the product's name and firmware versions as follows:



① INPUT FORMAT
② HORIZONTAL FREQUENCY (in kHz) / VERTICAL FREQUENCY (in Hz).
③ OUTPUT STANDARD.
④ OUTPUT RATE TYPE / OUTPUT FREQUENCY

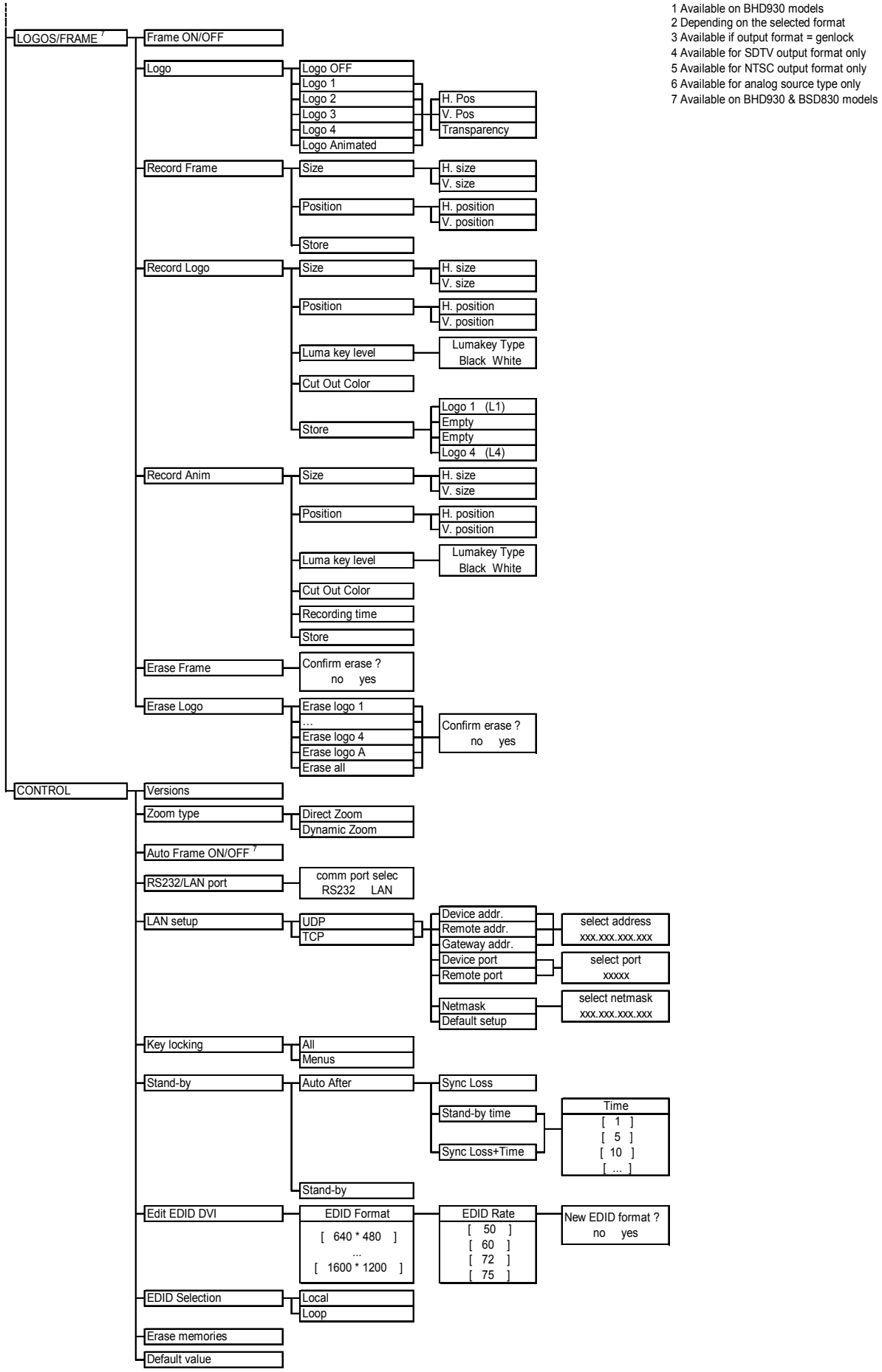
4-4. CONTROL MODE

The menus of the device are configured as follow:



[1] Available on BHD930 models
[2] Depending on the selected format
[3] Available if output format = genlock
[4] Available for SDTV output format only
[5] Available for NTSC output format only
[6] Available for analog source type only
[7] Available on BHD930 & BSD830 models

1 Available on BHD930 models
2 Depending on the selected format
3 Available if output format = genlock
4 Available for SDTV output format only
5 Available for NTSC output format only
6 Available for analog source type only
7 Available on BHD930 & BSD830 models



4-5. FUNCTIONS DESCRIPTION

[INPUT]

[Auto settings]
This function detects automatically the input type of the source connected to the input connectors (DVI & RGB). Then the device performs an auto-centering function.

[Input status]
Indicates the status of the selected input.

[Input type]
Select one of the following input types with ◄ ► + **ENTER**:

- **[RGB SOG]:** RGB computer signal with Sync On Green connected to the HD15 connector.
- **[RGBHV/Cs]:** RGB computer signal with Composite Sync or Separate H&V sync connected to the HD15 connector.
- **[DVI-D]:** Digital computer source connected to the DVI input connector.
- **[Black &White]:** Black & White analog computer source connected to the HD15 connector.

[Input format]

- **[auto select]:** The input format (resolution) is automatically selected.
- **[-----]:** Manually selection of the input format. The input selection format may be done manually in some cases, notably with 16/9 input formats.

[H sync load]
Select the Horizontal sync load of your input signal with ◄ ► + **ENTER.**

[OUTPUT]

[Status]
Displays the output status.

[Format]
① Select one of the following items with ◄ ► + **ENTER**:

- **[NTSC]**: NTSC output standard.
- **[PAL]**: PAL output standard.
- **[720p]**: 720p output format (Available on BHD930 models).
- **[1035i]**: 1035i output format (Available on BHD930 models).
- **[1080i]**: 1080i output format (Available on BHD930 models).
- **[1080p]**: 1080p output format (Available on BHD930 models).
- **[1080sf]**: 1080sf output format (Available on BHD930 models).
- **[Genlock]**: Output format synchronized onto the signal connected to the genlock input.

NOTE: • When a SDTV (NTSC or PAL) format (or SDTV Genlock signal) is selected, the following outputs are available simultaneously:
-C.VIDEO (NTSC/PAL BNC connector)
-S.VIDEO (4-pin mini DIN connector)
-RGB/YCrCb (3 or 4xBNC connectors)
-Two SDI on BNC connectors (BHD930 & BSD830 models only).

• When a HDTV (720p, 1035i, 1080i, 1080p, 1080sf) format or (HDTV Genlock signal) is selected, the following outputs are available simultaneously:
-HD-YUV (On YCrCb BNC connectors)
-Two HD-SDI on BNC connectors (BHD930 models only).

② Then select one of the following frame rates with ◄ ► + **ENTER.** The following items depend on the selected output format.

- **[23.97 Hz]** **[24 Hz]** **[25 Hz]**
- **[29.97 Hz]** **[30 Hz]** **[50 Hz]**
- **[59.94 Hz]** **[60 Hz]**
- **[Frame lock]**: The output frame rate is synchronized onto the frame rate of the signal connected to the genlock input.

4-5. FUNCTIONS DESCRIPTION (continued)

- **[Genlock Tune].**
  This function is available only if the Output format selected is Genlock, and if a correct genlock signal is detected on the GENLOCK INPUT connector.
  - **[H Phase]**: This function allows adjusting the genlock horizontal phase. Adjust with ◄ ► + **ENTER.**
  - **[SC. Phase]**: This function allows adjusting the genlock Subcarrier phase. (Available with Analog SDTV Genlock signal only). Adjust with ◄ ► + **ENTER.**
- **[Type] Available for SDTV output format.**
  Select the needed signal available on the RGB/YUV output
  - **[RGBS]**: RGB/S video output.
  - **[RGsB]**: RGB with Sync on Green video output.
  - **[YUV]:** Component video output.
- **[Pedestal] Available for NTSC output format.**
  Add a pedestal to the NTSC output format.
- **[Test pattern]**
  Select one item with ◄ ► + **ENTER**.
  - **[Grey Scale]:** Displays onto the output a grey scale pattern.
  - **[Color bar]:** Displays onto the output a color bar pattern.
  - **[Grid]**: Displays onto the output a grid pattern.
  - **[SMPTE]**: Displays onto the output a SMPTE pattern
  - **[No]**: turns OFF the test pattern.

- **[IMAGE]**
  - **[Auto Centering]**
    This function centers automatically the image source in the screen and then for the RGB signal, performs pixel clock & phase adjustments.
  - **[Optimize]**
    - **[Clock]**: Manual adjustment of the pixel clock.
    - **[Phase]:** Manual adjustment of the pixel phase.
  - **[Aspect in]**
    Select the Aspect Ratio of your input source with ◄ ► + **ENTER.**
    - **[4/3 standard]**: 4/3 input format.
    - **[16/9]:** 16/9 input format (computer).
  - **[Aspect out]**
    Select one of the following output aspect ratio with ◄ ► + **ENTER.**
    - **[Standard]**: The entire image and the aspect ratio are preserved.
    - **[Crop]**: The image is zoomed without deformation to fill the screen, but some borders of the image will be cropped. The aspect ratio is preserved.
    - **[Full Screen]**: The image is stretched to fill the screen. The aspect ratio is not preserved.
    - **[Zoom]**: The image can be zoomed, cropped and stretched at your convenience.
  - **[Under/over]**
    Select an item with ◄ ► + **ENTER**.
    - **[Underscan]**: The output image is full screen.
    - **[Overscan]**: The output is 10% bigger than in underscan mode.
  - **[RGB Levels] (Available for analog input source only).**
    Select an item with ◄ ► + **ENTER.**
    - **[Red]**: Adjust the level of the Red with ◄ ► + **ENTER.**
    - **[Green]**: Adjust the level of the Green with ◄ ► + **ENTER.**
    - **[Blue]**: Adjust the level of the Blue with ◄ ► + **ENTER.**
  - **[Black Level]**
    Adjust the Black level with ◄ ► + **ENTER.**

4-5. FUNCTIONS DESCRIPTION (continued)

- **[Gamma]**
  Select one of the 8 levels of the anti-flicker with ◄ ► and validate with **ENTER**.
- **[Flicker filter]**
  Select one of the 8 levels of the anti-flicker with ◄ ► and validate with **ENTER**.
- **[Sharpness]**
  Adjust the image sharpness with ◄ ► and validate with **ENTER**.
- **[Preset]**
  This function allows to set all the image parameters (flicker filter, Black level, RGB level, under/overscan, position & size) to the factory settings.

FUNCTION	POSITION	FUNCTION	POSITION
R, G, B levels	0	Flicker filter	4
Black level	0	Sharpness	0
Gamma	1		

- **[AUDIO] Available on BHD930 & BSD830 models.**
  - **[Embed. ON/OFF]**
    Allows embedding analog audio stereo signal into the HD/SD-SDI signals.
  - **[Mute ON/OFF]**
    Switch ON or OFF the audio output. Validate with **ENTER**.
  - **[Level]**
    Adjust the audio level with ◄ ► + **ENTER.**
  - **[Balance]**
    Adjust the balanced level with ◄ ► + **ENTER.**
- **[LUMAKEY OUT]**
  - **[Lumakey ON/OFF]**
    Allows activating Luma key outputs.
  - **[Threshold]**
    - **[Offset up]**
      Offset up adjustment**.**
    - **[Offset down]**
      Offset down adjustment**.**
    - **[Gain]**
      Gain level adjustment**.**

4-5. FUNCTIONS DESCRIPTION (continued)

- **[LOGOS/FRAME] Available on BHD930 & BSD830 models.**
  - **[Frame ON/OFF].** Display ON or OFF the stored frame onto the output.
  - **[Logo]**
    - **[Logo OFF]:** Display off the logo.
    - **[Logo 1]:** Display the logo 1.
    - **[Logo 2]:** Display the logo 2.
    - **[Logo 3]:** Display the logo 3.
    - **[Logo 4]:** Display the logo 4.
    - **[Logo Animated]:** Display the animated logo.
  - **[Record frame]**
    This mode allows storing up a frame in order to display them at any time during the show.
    - **[Size]**
      Adjust the size of the frame area with ◄ ► + **ENTER.**
    - **[Position]**
      Adjust the position of the frame area with ◄ ► + **ENTER.**
    - **[Store]**
      This function allows storing the displayed image (frame). Presses **ENTER** to start the memorization of the frame. The memorization will take about 2 minutes.
  - **[Record logo]**
    This mode allows storing up to 4 logos in order to incrust them into the displayed image. Select an item with ◄ ► + **ENTER.**
    - **[Size]**
      Adjust the size of the logo area with ◄ ► + **ENTER.**
    - **[Position]**
      Adjust the position of the logo area with ◄ ► + **ENTER.**
      NOTE: The logo area is limited at an eighth (1/8) of the displayed area.
    - **[Luma key level]**
      This function allows "erasing" the darkest or brightest portions of your logo area in order to make special logo contour. Select the luma key type (White or Black) and adjust the luma key level with ◄ ► + **ENTER.**
    - **[Cut out color]**
      This function allows coloring the "erased portions" of the logo area in order to make special logo contour.
    - **[Store]**
      This function allows storing the logo into one of the 4 memories. Select a logo memory with ◄ ► + **ENTER.** The memorization will take few seconds.

4-5. FUNCTIONS DESCRIPTION (continued)

- **[Record anim]**
  This mode allows storing an animated logo in order to incrust them into the displayed image. Select an item with ◄ ► + **ENTER.**
  - **[Position]**
    Adjust the position of the logo area with ◄ ► + **ENTER.**
  - **[Size]**
    Adjust the size of the logo area with ◄ ► + **ENTER.**

  NOTE: The logo area is limited at an eighth (1/8) of the displayed area.
  - **[Luma key level]**
    This function allows "erasing" the darkest or brightest portions of your logo area in order to make special logo contour. Select the luma key type (White or Black) and adjust the luma key level with ◄ ► + **ENTER.**
  - **[Cut Out color]**
    This function allows coloring the "erased portions" of the logo area in order to make special logo contour.
  - **[Recording time]**
    Adjust the recording time with ◄ ► + **ENTER.**
  - **[Store]**
    This function allows storing the logo into the memory. The memorization will take few seconds.
- **[Erase frame]**
  This function allows erasing the memorized frame.
- **[Erase logo]**
  This function allows erasing the memorized logos.

- **[CONTROL]**
  - **[Version]**
    Status of the internal firmware.
  - **[Zoom type]**
    Status of the internal firmware.
    - **[Direct zoom]:** The zoomed area is direct displayed.
    - **[Dynamic zoom]:** The zoomed area is progressively displayed.
  - **[Auto frame ON/OFF] Available on BHD930 & BSD830 models.**
    Display automatically the Frame when the sync. of the selected input is not anymore detected.
  - **[RS232/LAN port]**
    Select the needed communication port with ◄ ► **+ ENTER.**
    - **[RS232]:** Enables the RS-232 communication port. (Default setting).
    - **[LAN]:** Enables the LAN communication port.

    IMPORTANT: To avoid addresses conflict, configure the LAN communication port (with the **LAN setup** menu) before activates it.

    NOTE: The RS-232 & the LAN communication ports can not be used simultaneously.

4-5. FUNCTIONS DESCRIPTION (continued)

- **[LAN setup]** + **ENTER.** (Available with the LAN option only)
  Allows configuring the LAN communication port. Select the UDP or TCP protocol with ◄ ► + **ENTER** then select items with ◄ ► + **ENTER.**
  - **[device addr.]**: Every device connected to an IP network must have a unique IP address. This address is used to reference the specific unit. IP addresses are specified as **x.x.x.x** where each **x** is a number from 1 to 254. Assign the device to a unique IP address with ◄ ► + **ENTER**. (Default value: 192.168.0.2).
  - **[remote addr.]**: This is the destination IP address used with an outgoing connection. Select the destination IP address with ◄ ► + **ENTER**. (Default value: 192.168.0.1).
  - **[gateway addr.]**: The gateway address, or router, allows communication to other LAN segments. The gateway address should be the IP address of the router connected to the same LAN segment as the unit. Select the gateway address with ◄ ► + **ENTER**. (Default value: 192.168.0.1).
  - **[device port]**: Every TCP connection and every UDP datagram is defined by a destination IP address and a port number. Select a local port number with ◄ ► + **ENTER** between 10000 and 10999. (Default value: 10500).
  - **[remote port]**: You must set the remote TCP port number for the unit to make outgoing connections. This parameter defines the port number on the target host to which a connection is attempted. Select a remote port number with ◄ ► + **ENTER** between 00000 and 655000. (Default value: 10500).
  - **[netmask]**: A netmask defines the number of bits taken from the IP address that are assigned for the host section. The device prompts for the number of host bits to be entered, then calculates the netmask, which displays in standard decimal-dot notation when the saved parameters are displayed. Select the netmask with ◄ ► + **ENTER**. (Default value: 255.255.255.0).
  - **[default setup]**: Set all the LAN settings to the default value. Select **[YES]** and validate with **ENTER.**

  MAC ADDRESS: The MAC address, also referred to hardware address, is a unique number assigned to each device. The MAC address is available on the bottom device label.

- **[Key locking]**
  Select an item with ◄ ► and change the mode with **ENTER**.
  - **[All]:** Locks/unlocks all the front panel switches.
  - **[Menus]:** Locks/unlocks the **CONTROL** switches.

  NOTE: To unlock presses simultaneously on **ENTER** and **EXIT**.

- **[Stand-by]**
  - **[Auto After]:** Select an item between:
    - **[Sync loss]:** The standby mode is automatically activate when the sync. of the selected input is not anymore detected.
    - **[Stand-by time]:** The standby mode is activated after the duration of your choice.
    - **[Sync loss + time]:** The standby mode is activate when the sync. of the selected input is not anymore detected and after the duration of your choice.
  - **[Stand-by]:** Manual activation of the Stand-by mode.

4-5. FUNCTIONS DESCRIPTION (continued)

▸ [Edit EDID DVI]

Extended Display Identification Data (EDID) is a data structure provided by a computer display to describe its capabilities to a graphics card. The Broad Scan allows to edit a format when none control monitor (computer display) is connected to the broad scan or when you need to work in another format than the native control monitor format. Select the resolution and rate, then activate the Broad Scan EDID (local) in following section

▸ [EDID Selection] + ENTER.

▸ Local: Activate the Broad Scan EDID

▸ Loop: Activate the computer display EDID. The computer display should be connected to the DVI-D monitor OUT.

▸ [Erase memories] + ENTER.

This function allows erasing all the image settings memorized.

▸ [Default value] + ENTER.

This function allows clearing the following adjustments and setting them to the factory value:

FUNCTION	POSITION	FUNCTION	POSITION
INPUT ▸ Input type	RGBHV/Cs	AUDIO ▸ Audio Embed.	OFF
INPUT ▸ H sync load	Hi-Z.	AUDIO ▸ Mute	OFF
INPUT ▸ Input format	Auto select	AUDIO ▸ Level	48
OUTPUT ▸ Format	PAL 50Hz	AUDIO ▸ Balance	0
OUTPUT ▸ Genlock ▸ H phase	0	LUMA KEY	OFF
OUTPUT ▸ Genlock ▸ SC phase	0	LOGOS/FRAME ▸ Frame	OFF
OUTPUT ▸ Type	YUV	LOGOS/FRAME ▸ Frame	OFF
OUTPUT ▸ Test pattern	OFF	CONTROL ▸ zoom type	direct
IMAGE ▸ Aspect in	4/3	CONTROL ▸ auto frame	OFF
IMAGE ▸ Aspect out	1:1	CONTROL ▸ EDID Selection	Loop
IMAGE ▸ Under/over	underscan	Front Panel ▸ FRAME	OFF
IMAGE ▸ R, G, B levels	0	Front Panel ▸ FREEZE	OFF
IMAGE ▸ Black level	0	Front Panel ▸ Position	0
IMAGE ▸ Gamma	1	Front Panel ▸ Size	0
IMAGE ▸ Flicker filter	4	Front Panel ▸ Zoom mode	OFF
IMAGE ▸ Sharpness	0	Front Panel ▸ Zoom size	100%

CHAPTER 5 : UPDATING THE DEVICE

The device can be updated thanks a computer (PC) via its RS-232 communication port or via its LAN communication port.

5-1. CONNECTIONS

① Connect the device to an AC power outlet.

② Switch ON the device (REAR PANEL SWITCH = I).

③ Connect the device to the computer used for the update via the desired communication port.
- For the RS232 communication port: Connect the RS232 connector of the device to the serial port of your computer with a DB9 M/F straight cable.
- For the LAN communication port: Connect the RJ45 connector of the device to your network according to your installation. Then with the front panel display menu configure the LAN communication port (**CONTROL > LAN setup**) and activate the LAN communication port (**CONTROL > RS232/LAN port > LAN**).

5-2. UPDATE INSTRUCTIONS

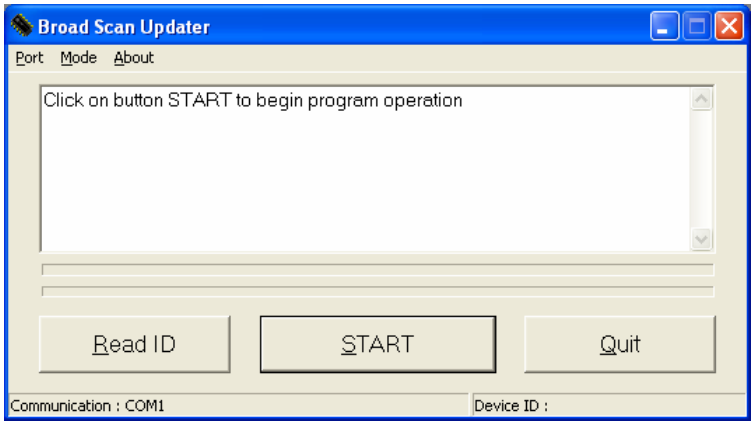
① Switch ON the device.

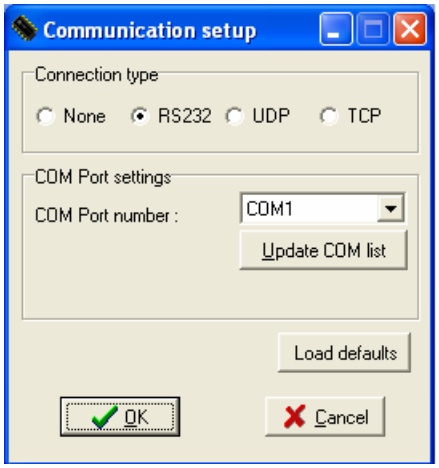
② Open the file: BroadScan Updater (in **Start > Program > ANALOGWAY > BroadScan Updater**).

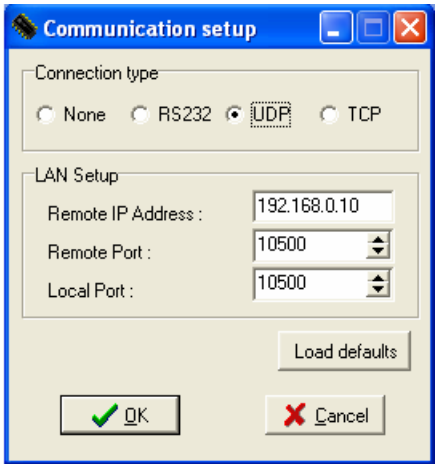
③ Click on the **Port** menu and select setup: the **Communication setup** window open.
-If you use the RS232 port: Select RS232 and the **Com** port connected to the device.
-If you use the LAN Port: Select UDP or TCP and select the communication parameters.

④ Click on **START** on the software. The update will start.

⑤ When the software displays: **Program operation completed**, click on the **Quit** button to close the update software. Your device is now ready to work.







NOTE: The updater files are available on our web site: **http://www.analogway.com**

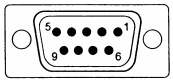
CHAPTER 6 : REMOTE CONTROL SOFTWARE

Your device is shipped with a Windows compatible **Remote Control Software**. This software allows you to control and make all adjustments by a simple mouse click.
NOTE: Preferably use Windows NT, 2000 or XP for LAN operation.

6-1. CONNECTIONS

① **CONNECTING TO THE RS-232 PORT:**
- Connect the serial port of your control device to the **RS-232** port (DB9 Female connector) of the device with a **straight** cable (DB9 Female / DB9 Male).
- Speed transmission: 9600 bauds, 8 data bits, 1 stop bit, no parity bit, and no flow control.
- Pin-out:

PIN #	FUNCTIONS
2	TRANSMIT DATA (Tx)
3	RECEIVE DATA (Rx)
5	GROUND (Gnd)



DB9 female (Rear panel of the device)

② **CONNECTING TO THE LAN PORT (optional):**
- Connect the LAN port (RJ45 connector) of the device to your network according to your installation.

6-2. SOFTWARE INSTALLATION:

① Turn your computer ON and wait for Windows to completely start.
② Insert the CD-ROM into your drive: the ANALOG WAY home window will open automatically.
③ Select the language of the CD-ROM menus, then click on "Install a Remote Control Software" and select the name of your device.

IMPORTANT: If the Autorun is not enabled: From the Windows desktop, open My Computer and select the CD-ROM drive. Select the Autorun folder, and then select the autorun.exe file.

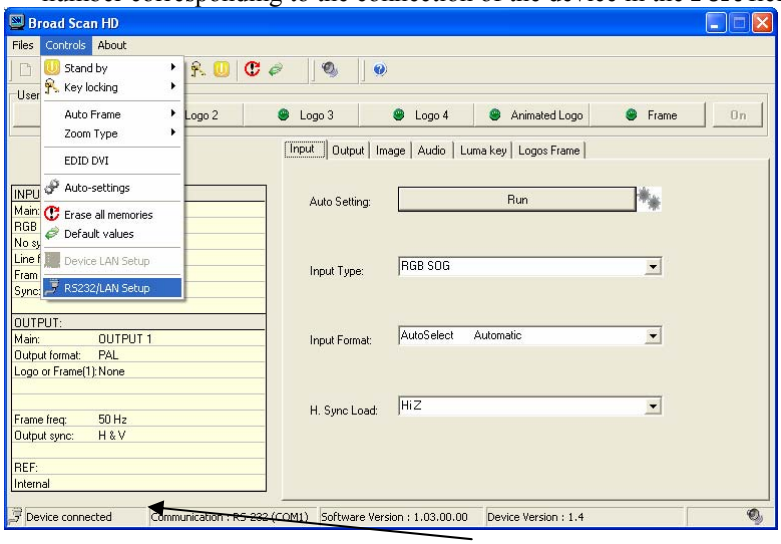
④ Follow the Windows installation instructions.

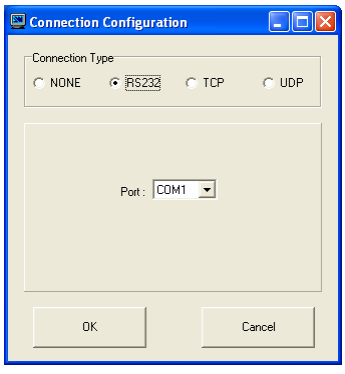
6-3. COMMUNICATION SETUP

① Connect the RS-232 or RJ45 cable between the device and the control device as indicated in the section 6-1.
② Then only power ON all of the devices.
③ Click on the program files **BroadScan** in **Start>program>ANALOGWAY>BroadScan** to run the software.
④ Click on **Controls** menu and select **RS232/LAN setup**, then:

- **CASE OF RS-232 PORT:**

- With the front panel display menu of the device, verify that the RS-232 port is activate (**CONTROL > RS232/LAN port > RS232**).
- With the **Controls** menu of the software, select **RS232/LAN setup,** then select RS232 and select the **COM** port number corresponding to the connection of the device in the **Port** field.



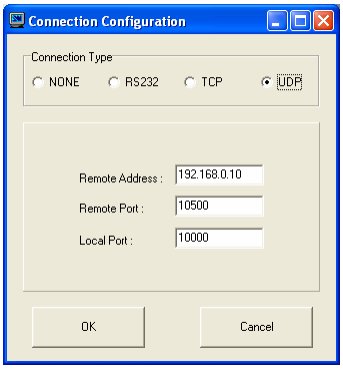


If the communication is OK, the message "**Device connected**" is displayed as well as the model in the windows title bar.

6-3. COMMUNICATION SETUP (continued)

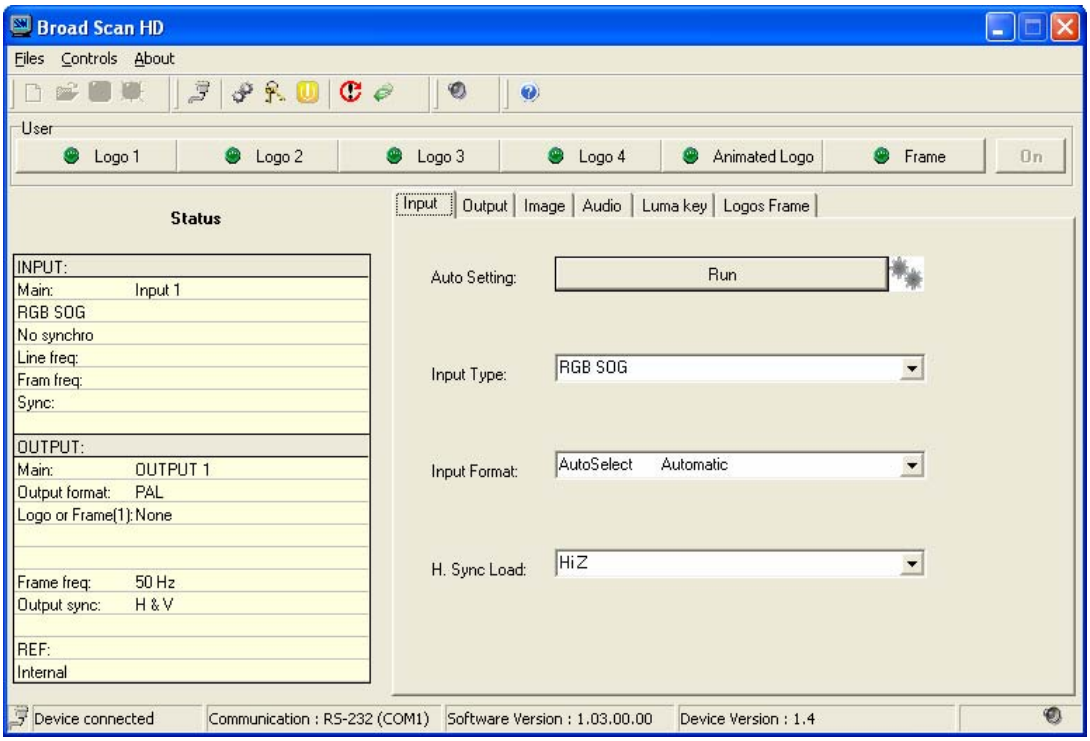
- **CASE OF LAN PORT:**

- With the front panel display menu of the device, verify the configuration of the LAN communication port (**CONTROL > LAN setup**), then activate the LAN communication port (**CONTROL > RS232/LAN port > LAN**).
- With the **Controls** menu of the software, select **RS232/LAN setup** and **LAN Setup**. Then configure the **Local port**, the **Remote IP address** and the **Remote port** and click on **Apply** to setup the new values. The software will also display **Device connected**.



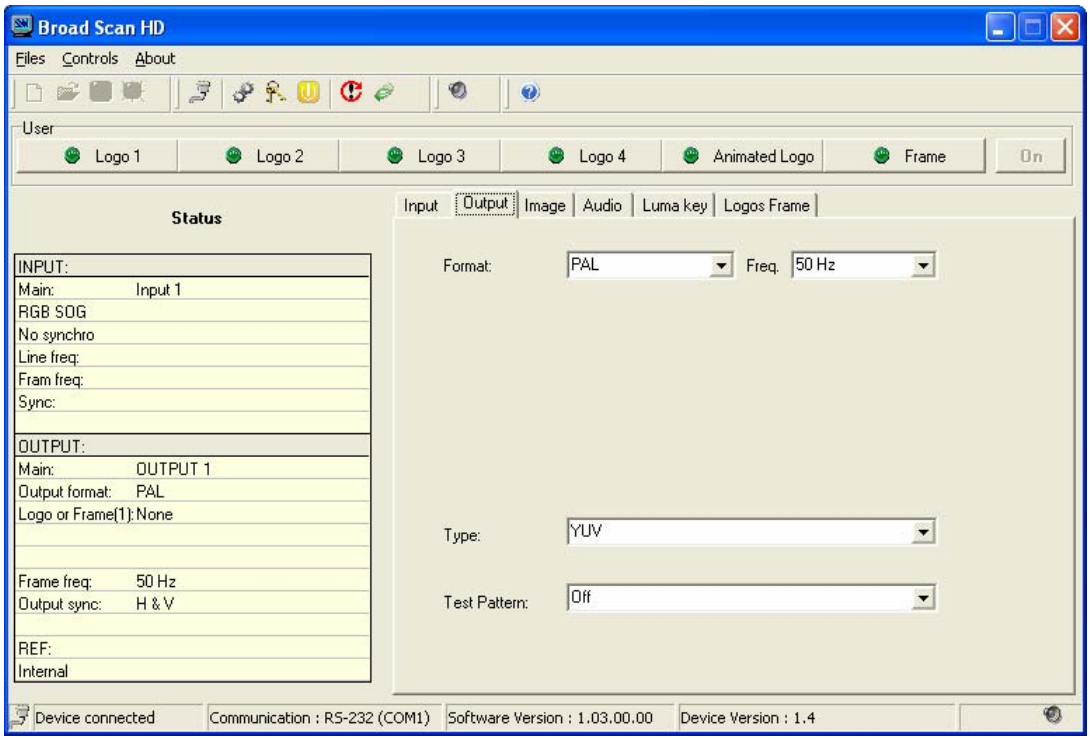
6-4. USING THE SOFTWARE

① Click on the **Input** tab, and select the needed adjustments.

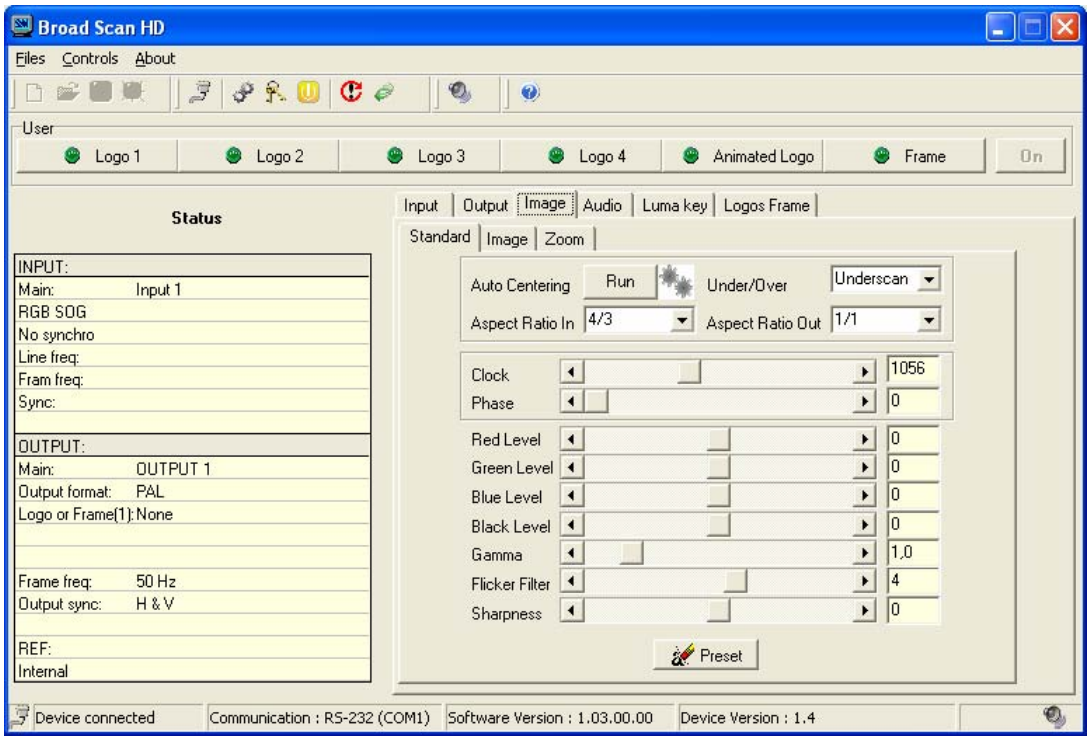


6-4. USING THE SOFTWARE (continued)

② Click on the **Output** tab and adjust your input.

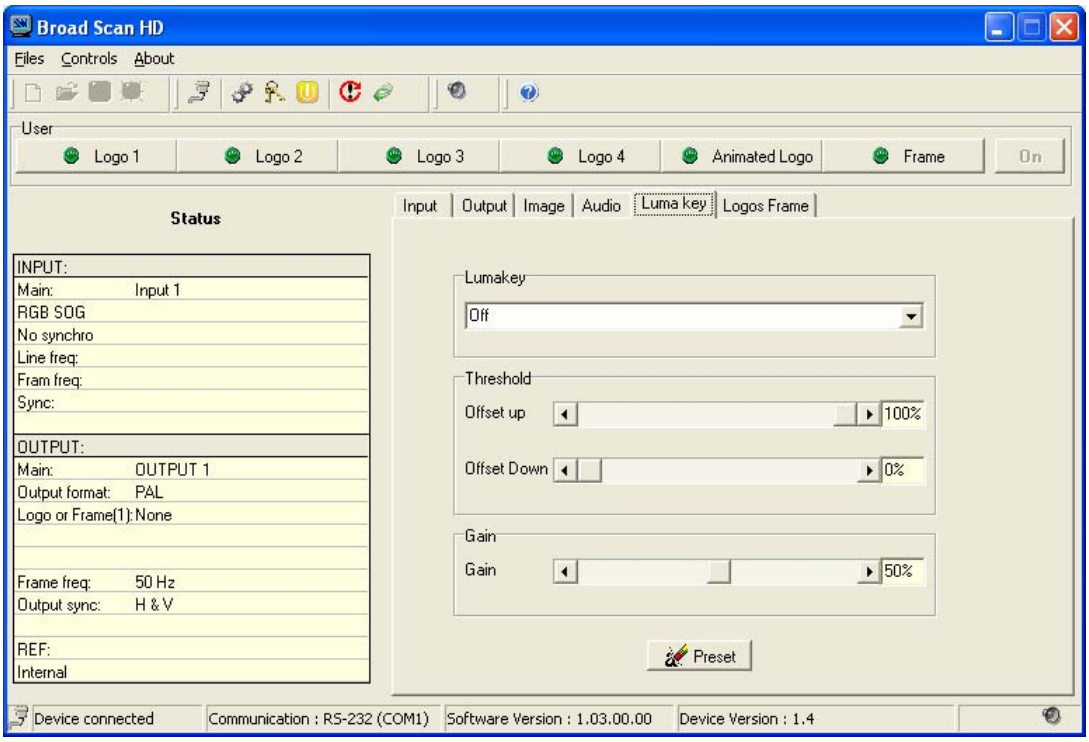


③ Click on the **Image** tab, and then adjust all the needed image parameters.

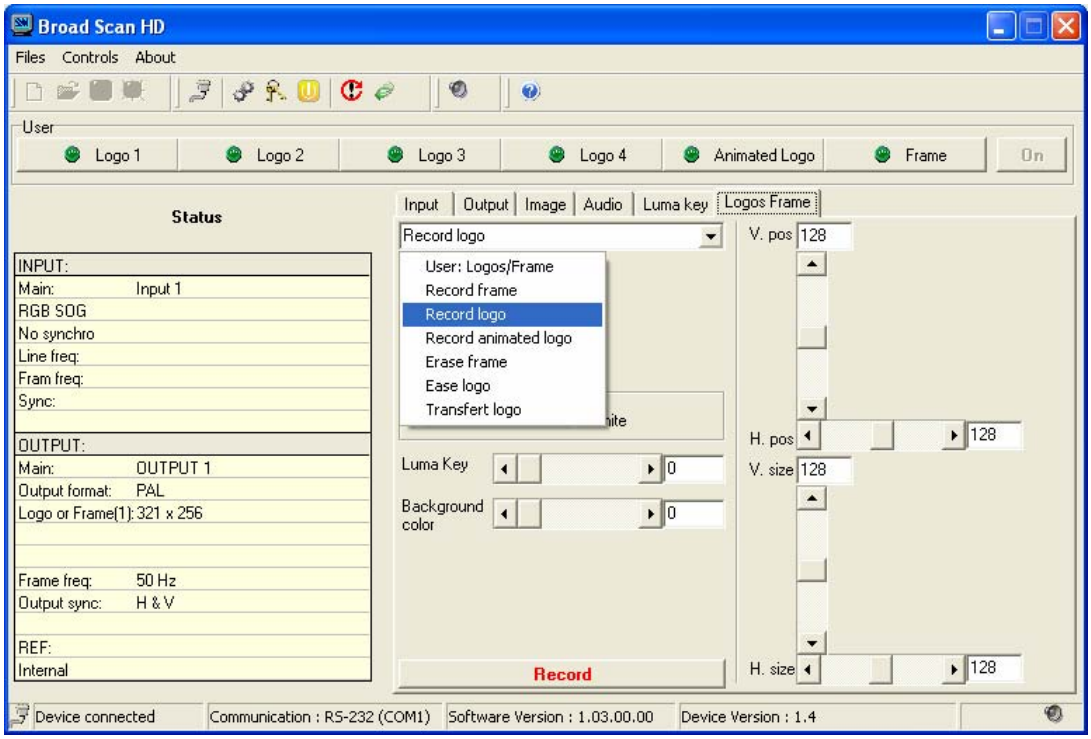


6-4. USING THE SOFTWARE (continued)

④ Click on the Lumakey tab to accede to the Luma key adjustment.



⑤ Click on the **Logos Frame** tab and make the genlock adjustments.



NOTE: **Transfer logo mode**: The Remote Control Software allows transferring directly a logo from the controlling computer to the Broad scan. This function is very useful for the animated logo (gif image). In the list box, select **transfer logo** to display the Logos and frame loader window. Then Click on the Picture load button and select a picture to display it in the window. Perform the needed adjustments and select a number (in Logo/Frame number list box) to store the logo in the Broad Scan memories. The transfer will take few minutes.

CHAPTER 7 : TECHNICAL SPECIFICATIONS

7-1. COMPUTER INPUTS

- **ANALOG COMPUTER INPUT**

Connector: HD15 female.

Line frequency: From 31.5 kHz to 130 kHz.

Frame frequency: Up to 130 Hz.

Resolution: Up to 1600 x 1200

Signal & Sync. type: RGBHV, RGB/S, RGsB (Sync On Green).

Level: R, G, B: 0.7 Vp/p.
H & V Sync: TTL.
Composite Sync: TTL and 0.3 V.
SOG (Sync On Green): 0.3 V.

Impedance: R, G, B: 75 Ohm
H: Hi-Z or 75 Ohm.
V: Hi-Z

- **DIGITAL COMPUTER INPUT**

Connector: DVI-I female.

Format: Digital Visual Interface (DVI-D)

Resolution: Up to 1600 x 1200 @ 60Hz.
Up to 1920 x 1200 @ 60Hz RB (Reduced Blanking).

- **AUDIO INPUT***

Connectors: 2xRCA female.

Type: Stereo unbalanced.

Levels: Vi = + 18 dBU max.
Zi = 44 kΩ unbalanced.

Gain: 0 dB to - ∞ dB.

7-2. VIDEO OUTPUTS

- **RGB/S VIDEO**

Connectors: 4 BNC female.

Frequency: 15.625 kHz / 50 Hz (625 lines).
15.734 kHz / 59.94 Hz (525 lines).

Level: R, G, B : 0.7 Vp/p.
Sync: 5 V TTL.
SOG: 0.3 Vp/p.

Impedance: 75 Ohm.

- **COMPONENT (YUV)**

Connectors: 3 BNC female.

Frequency: 15.625 kHz / 50 Hz (625 lines).
15.734 kHz / 59.94 Hz (525 lines).

Level: Y: 1 Vp/p (0.7 V Luma + 0.3 V Sync.).
Cr, Cb: 0.7 Vp/p.

Impedance: 75 Ohm.

*** Available on the BSD830 & BHD930 models only.**

7-2. VIDEO OUTPUTS (continued)

- **HD-YUV / HD-YCrCb (MODELS: BHD930-AG & BHD930-DG)**

  Connectors: 3 BNC female.

  Format: 720p @ 60, 59.94 & 50 Hz (SMPTE 296M)
  1080i @ 60, 59.94 & 50 Hz (SMPTE 274M)
  1035i @ 60 & 59.94 Hz (SMPTE 260M)
  1080sF @ 30, 29.97 & 25 Hz (RP2H/SMPTE 274M)
  1080p @ 30, 29.97, 25, 24 & 23.98 Hz (RP2H/SMPTE 274M)

  Level: Y: 1 Vp/p (0.7 V Luma ± 0.3 V Sync.).
  Cr, Cb: 0.7 Vp/p.

  Impedance: 75 Ohm.

- **S.VIDEO**

  Connector: 4-pin mini DIN female.

  Standard: PAL : 15.625 kHz / 50 Hz - 625 lines.
  NTSC : 15.734 kHz / 59.94 Hz - 525 lines - 7.5 IRE.

  Level: Y : 1 Vp/p (0.7 V Luma + 0.3 V Sync.).
  C : 0.7 Vp/p (0.3 V Chroma Burst).

  Impedance: 75 Ohm.

- **COMPOSITE VIDEO**

  Connector: BNC female.

  Standard: PAL : 15.625 kHz / 50 Hz - 625 lines.
  NTSC : 15.734 kHz / 59.94 Hz - 525 lines - 7.5 IRE.

  Level: 1 Vp/p (0.7 V Luma + 0.3 V Sync.).

  Impedance: 75 Ohm.

- **FRAME LOCK**

  Connector: BNC female.

  Rate: Same rate as the output frame rate.

  Signal: TTL level.

- **SDI***

  Connector: BNC female (x2).

  Signal: 270 Mbps (4:2:2 – 10 bits) serial digital output.

  Impedance: 75 Ohm.

- **HD-SDI (MODELS: BHD930-AG & BHD930-DG only)**

  Connector: BNC female.

  Signal: 1.5 Gbps (4:2:2 – 10 bits) serial digital output.

  Format: 720p @ 60, 59.94 & 50 Hz (SMPTE 296M)
  1080i @ 60, 59.94 & 50 Hz (SMPTE 274M)
  1035i @ 60 & 59.94 Hz (SMPTE 260M)
  1080sF @ 30, 29.97 & 25 Hz (RP2H/SMPTE 274M)
  1080p @ 30, 29.97, 25, 24 & 23.98 Hz (RP2H/SMPTE 274M)

  Impedance: 75 Ohm.

- **ANALOG (SD/HD) LUMA KEY (HD available on BHD930 models only)**

  Connector: BNC female.

  Format: Same format as the output.

  Level: 0.7 Vp/p.

  Impedance: 75 Ohm.

*** Available on the BSD830 & BHD930 models only.**

7-2. VIDEO OUTPUTS (continued)

- **SDI LUMA KEY***

Connector: BNC female (x2).

Format: Same format as the output.

Impedance: 75 Ohm.

- **HD-SDI LUMA KEY (available on BHD930 models only)**

Connector: BNC female (x2).

Format: Same format as the output.

Impedance: 75 Ohm.

*** Available on the BSD830 & BHD930 models only.**

7-3. ANALOG GENLOCK (MODELS: BHD930-AG, BSD830-AG & BSC730)

Connectors: 2 BNC female.

Input signal type: Black Burst (PAL or NTSC) or 3-level HD black.

Impedance: 75 Ohm.

Output: Active loop-through.

7-4. DIGITAL GENLOCK (MODELS: BHD930-DG & BSD830-DG)

Connectors: 2 BNC female.

Input signal type: SD/HD-SDI Black.

Impedance: 75 Ohm.

Output: Active loop-through.

7-5. COMMUNICATION PORTS

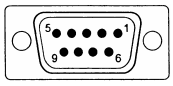
- **RS-232**

Connector: DB9 female.

Data Rate: 9600 Bauds, 8 data bits, 1 stop bit, no parity bit, and no flow control.

Pin-out:

PIN #	FUNCTIONS
2	Tx (transmit data to the control device)
3	Rx (receive data from the control device)
5	GROUND (Gnd)
8	Reserved for manufacturer.



DB9 connector

- **LAN (Optional)**

Connector: RJ-45 female.

Protocol: TCP (Transmission Control Protocol)
UDP (User Datagram Protocol).

Data Rate: 10 / 100 Mbps.

LED functions (on RJ45 connector):

Left LED	Right LED	Meaning
OFF	OFF	No link
OFF	ON	100 BASE-T link.
ON	OFF	10 BASE-T link.

7-6. ENVIRONMENTAL

Power Supply:	100VAC-250VAC ; 50-60Hz ; I = 0.5A Max.
Storage Temperature:	- 25 °C to + 85 °C (- 13 °F to + 185 °F)
Operating temperature:	0 °C to + 50 °C (32 °F to 122 °F)
Hygrometry:	10% to 80% (without condensation)
Dimensions:	Compatible with the 19" standard, height = 1 unit. W 482 mm (19”) x D 265 mm (10.4”) x H 44 mm (1.74”).
Weight:	3.3 kg (7.3 Lbs.).

APPENDIX A: PROGRAMMER'S GUIDE

A-1: INTRODUCTION

If you need to use your own Software Control program from a PC or WORKSTATION with an RS-232 port, the device allows communication through an ASCII code protocol.
The device treats any character that it receives on the RS-232 as a possible command but only accepts legal commands. There is no starting/ending code needed in a command string.
A command can be a single character typed on a keyboard and does not require any special character before or after it. (It is not necessary to press "ENTER" on the keyboard). A command can be preceded by a value (See chapter A-2: COMMANDS STRUCTURE).
When the device receives a valid command, it will execute the command. Then it will send back the status of the parameters that have changed due to this command.
If the command cannot be executed (value out of range, no signal on the selected input), the device will just sends back the current status of the corresponding parameters.
If the command is invalid, an error response will be returned to the control device. All responses returned to the control device end with a carriage return <CR> and a line feed <LF> signaling the end of the response character string (see chapter A-3: ERROR RESPONSE).

A-2: COMMANDS STRUCTURE

Commands are usually composed of a numerical value followed by the command character. The characters used without any numerical value return the current setting of the command.
Command = Value (optional) + Character.

Examples / *Exemples*:

Command / *Commande*		**Response *Réponse***	**Description**
Value/ *Valeur*	Character / *Caractère*		
none *aucune*	**F**	**OFMT1**	Read the output format. *Lit le type de format.*
10	**v**	**VP10**	Set the vertical position to 10. *Règle la position verticale à 10.*

A-3: ERROR RESPONSE

When the device receives from the control device an invalid command or value, it returns an error response:

Example / *Exemple*:

Command / *Commande*		**Response *Réponse***	**Description**
Value/ *Valeur*	Character / *Caractère*		
70260	**z**	**E10**	Invalid command. / *Commande invalide.*

ANNEXE A: GUIDE DE PROGRAMMATION

A-1: INTRODUCTION

Si vous souhaitez utiliser votre propre logiciel de contrôle avec votre PC, MAC ou Station de Travail par un port RS-232, l'appareil peut communiquer par simple émission / réception de caractères ASCII.
L'appareil traite tous les caractères reçus sur son port RS-232 comme des commandes possibles; seules certaines commandes sont reconnues et acceptées.
Une commande est constituée d'un ou deux caractères sans code de contrôle ni avant, ni après. Il n'est pas nécessaire d'appuyer sur "ENTER" du clavier. Une commande peut être précédée d'une valeur (voir chapitre A-2: STRUCTURE D'UNE COMMANDE*).*
Lorsque l'appareil reçoit une commande valide, il exécute cette commande puis renvoie à l'appareil de contrôle l'état de tous les paramètres qui ont été modifiés suite à l'envoie de cette commande.
Si la commande n'est pas reconnue (valeur en dehors de la plage, pas de signal sur l'entrée sélectionnée), l'appareil renvoie uniquement les états des paramètres correspondants.
Si la commande est invalide, une réponse d'erreur sera retournée à l'appareil de contrôle. Toute réponse faite à l'unité de contrôle se termine par un retour à la ligne et par un saut de ligne (CR / LF) signalant la fin de la commande de réponse. (Voir chapitre: A-3: RÉPONSE D'ERREUR).

A-2: STRUCTURE D'UNE COMMANDE

Les commandes sont généralement constituées d'une valeur numérique suivit par 1 ou 2 lettres de commande. Une lettre utilisée sans valeur numérique renvoie l'état de la commande.
Commande = Valeur (optionnelle) + Caractère

Examples / *Exemples*:

Command / *Commande*		**Response *Réponse***	**Description**
Value/ *Valeur*	Character / *Caractère*		
none *aucune*	**F**	**OFMT1**	Read the output format. *Lit le type de format.*
10	**v**	**VP10**	Set the vertical position to 10. *Règle la position verticale à 10.*

A-3: RÉPONSE D'ERREUR

Lorsque l'appareil reçoit de l'appareil de contrôle une valeur ou une commande invalide, il retourne le message d'erreur suivant:

Example / *Exemple*:

Command / *Commande*		**Response *Réponse***	**Description**
Value/ *Valeur*	Character / *Caractère*		
70260	**z**	**E10**	Invalid command. / *Commande invalide.*

A-4: COMMANDS AND RESPONSES TABLE

A-4: TABLE DES COMMANDES ET RÉPONSES

COMMAND *COMMANDE*	RESPONSE *RÉPONSE*	COMMAND DESCRIPTION *DESCRIPTION DE LA COMMANDE*	TYPE	VALUE /*VALEUR*			
				MIN	MAX	DESCRIPTION	
FRONT PANEL COMMANDS / *COMMANDES DE LA FACE AVANT*							
ws	ws	Standby function (ON/OFF)	Rd/Wr	0	1	0 = ON	1 = OFF
CN	CN	Frame selection	Rd/Wr	0	1	0 = OFF	1 = ON
OB	OB	Black function	Rd/Wr	0	1	0 = Black inactive	1 = Black active
FZ	FZ	Freeze function.	Rd/Wr	0	1	0 = Freeze inactive	1 = Freeze active.
OV	OV	Under/Overscan mode selection.	Rd/Wr	0	1	0 = Underscan.	1 = Overscan.
OA	OA	Output aspect ratio	Rd/Wr	0	2	0 = 1:1 2 = Crop	1 = Full screen
HP	HP	Horizontal position adjustment.	Rd/Wr	0	255		
VP	VP	Vertical position adjustment.	Rd/Wr	0	255		
HW	HW	Horizontal size adjustment.	Rd/Wr	0	255		
VS	VS	Vertical size adjustment.	Rd/Wr	0	255		
ZM	ZM	Zoom mode selection	Rd/Wr	0	2	0 = zoom OFF 2 = zoom finder ON	1 = zoom ON
ZH	ZH	Zoom horizontal position.	Rd/Wr	0	255		
ZV	ZV	Zoom vertical position.	Rd/Wr	0	255		
ZW	ZW	Zoom horizontal size.	Rd/Wr	100	10000	100 = 10% (x0.1) 1000 =100% (no zoom) 10000 = 1000% (x10)	
ZS	ZS	Zoom vertical size.	Rd/Wr	100	10000		
yC	yC	Auto-centering	Rd/Wr	0	1	1 = auto centering (automatic reset).	
INPUT COMMANDS / *COMMANDES D'ENTREE*							
az	az	Auto setting	Rd/Wr	0	1	1 = auto setting (automatic reset).	
PR	PR	Input type	Rd/Wr	0	3	0 = Computer (SOG) 1 = Computer (H&V or Composite sync.) 2 = Computer DVI-D 3 = Computer B&W	
PL	PL	H sync load selection.	Rd/Wr	0	1	0 = Hi-Z	1 = 75 ohms.
OUTPUT COMMANDS / *COMMANDES DE SORTIE*							
OF	OF	Output standard selection	Rd/Wr	0	7	0 = NTSC 2 = 480p 4 = 1035i 6 = 1080sF	1 = PAL 3 = 720p 5 = 1080i 7 = 1080p
OR	OR	Output frame rate	Rd/Wr	0	7	0 = 23.97 Hz 2 = 25 Hz 4 = 30 Hz 6 = 59.94 Hz	1 = 24 Hz 3 = 29.97 Hz 5 = 50 Hz 7 = 60 Hz
XR	XR	Synchronization mode selection.	Rd/Wr	0	2	0 = internal. 1 = genlock. 2 = frame lock	
XH	XH	H Phase genlock adjustment	Rd/Wr	32722	32814		
XS	XS	SC phase genlock adjustment	Rd/Wr	0	1023		
OZ	OZ	Output type selection.	Rd/Wr	0	2	0 = RGBS. 1 = RGsB (SOG). 2 = YUV.	
EP	EP	Pedestal (NTSC output only)	Rd/Wr	0	1	0 = OFF	1 = ON
OP	OP	Test pattern selection.	Rd/Wr	0	4	0 = no test pattern. 2 = color bar 4 = SMPTE	1 = grey scale 3 = grid

NOTE: **Rd** = Read only command / *Commande de lecture.* Rd/Wr = Read and write command / *Commande de lecture et d'écriture.*

COMMAND *COMMANDE*	RESPONSE *RÉPONSE*	COMMAND DESCRIPTION *DESCRIPTION DE LA COMMANDE*	TYPE	VALUE /*VALEUR*		
				MIN	MAX	DESCRIPTION
IMAGE COMMANDS / *COMMANDES DU MENU IMAGE*						
yC	yC	Auto-centering	Rd/Wr	0	1	1 = auto centering (automatic reset).
CL	CL	Optimize ▸ Clock adjustment	Rd/Wr	0	2744	
MP	MP	Optimize ▸ Phase adjustment	Rd/Wr	0	31	
IA	IA	Input aspect ratio selection	Rd/Wr	0	1	0 = 4/3 1 = 16/9
OA	OA	Output aspect ratio	Rd/Wr	0	255	0 = 1:1 1 = Full screen 2 = Crop
OV	OV	Under/Overscan mode selection.	Rd/Wr	0	2	0 = Underscan. 1 = Overscan.
QR	QR	Red level adjustment.	Rd/Wr	0	255	
QG	QG	Green level adjustment.	Rd/Wr	0	255	
QB	QB	Bleu level adjustment.	Rd/Wr	0	255	
QP	QP	Sharpness adjustment	Rd/Wr	0	255	
BR	BR	Black level adjustment	Rd/Wr	0	255	
GA	GA	Gamma adjustment	Rd/Wr	5	40	5 = level 0.5 40 = level 4
FK	FK	Flicker level selection.	Rd/Wr	0	7	
PC	PC	Input selection for adjustment	Rd/Wr	0	2	0 = all 1 = Source 2 = Frame
YE	YE	PRESET	Rd/Wr	0	1	1 = PRESET (automatic reset).
AUDIO COMMANDS / *COMMANDES AUDIO*						
AE	AE	Embedded AUDIO activation	Rd/Wr	0	1	0 = OFF 1 = ON (embedded audio)
AT	AT	Mute activation	Rd/Wr	0	1	0 = OFF 1 = ON (no sound on the output)
AL	AL	Audio level	Rd/Wr	0	64	0 = level min 64 = level max
AB	AB	Audio balance	Rd/Wr	0	64	0 = Left to max 64 = Right to max
LUMAKEY OUT COMMANDS / *COMMANDES DE SORTIE LUMAKEY*						
lm	lm	LUMAKEY activation	Rd/Wr	0	1	0 = OFF 1 = ON
Lo	Lo	Threshold – Offset up	Rd/Wr	64	940	64 = 0% 940 = 100%
LO	LO	Threshold – Offset down	Rd/Wr	64	940	64 = 0% 940 = 100%
LG	LG	Gain	Rd/Wr	0	64	64 : Unitary gain

NOTE: **Rd** = Read only command / *Commande de lecture.* Rd/Wr = Read and write command / *Commande de lecture et d'écriture.*

COMMAND *COMMANDE*	RESPONSE *RÉPONSE*	COMMAND DESCRIPTION *DESCRIPTION DE LA COMMANDE*	TYPE	VALUE /*VALEUR*		
				MIN	MAX	DESCRIPTION
LOGOS/FRAME COMMANDS / *COMMANDES DU LOGO/FRAME*						
LM	LM	Frame/logo mode.	Rd/Wr	0	6	0 = use mode. 1 = logo recording mode. 2 = animated logo recording mode 3 = frame recording mode. 4 = erasing logo mode. 5 = erasing frame mode. 6 = logo transfer mode.
LX	LX	Status of the logo programmer	**Rd**	0	4	0 = free. 1 = logo/frame in recalling process. 2 = logo/frame in storing process. 3 = output format incompatible with the logo. 4 = logo/frame in erasing process.
LA	LA	Logo assignment.	Rd/Wr	0	5	0 = no logo 1 = logo 1..... 4 = logo 4 5 = animated logo
LC	LC	• In logo recording mode: Number of the logo to be store (1 to 5). • In frame recording mode: Number of the frame to be store (1). • In erase logo mode: number of the logo to be erase (1 to 5) • In erase frame mode: number of the frame to be erase (1).	Rd/Wr	0	5	In erase mode: 0 = erase all
LD	LD	Display logo (according to PC command)	Rd/Wr	0	1	0 = Display OFF 1 = Display ON
LU	LU	Horiz. position of the logo storing area.	Rd/Wr	0	255	
Lu	Lu	Vert. position of the logo storing area.	Rd/Wr	0	255	
LK	LK	Horizontal size of the logo storing area.	Rd/Wr	5	255	5 = 3% 255 = 100%
Lk	Lk	Vertical size of the logo storing area.	Rd/Wr	5	255	5 = 3% 255 = 100%
LQ	LQ	Pixels number in a line of the storing area.	**Rd**	0	65535	
Lq	Lq	Lines number of the storing area.	**Rd**	0	65535	
LH	LH	Horizontal position of the logo.	Rd/Wr	0	255	
LV	LV	Vertical position of the logo.	Rd/Wr	0	255	
LW	LW	Logo horiz. size % output format.	**Rd**	5	255	5 = 3% 255 = 100%
LS	LS	Logo vert. size % output format.	**Rd**	5	255	5 = 3% 255 = 100%
Lx	Lx	Logo type.	**Rd**	0	2	0 = incrusting logo 1 = cutting logo 2 = animating logo
Ly	Ly	Pixels number in a line of logo/frame.	**Rd**	0	65535	These 2 commands allow calculating the duration of the storing.
Lz	Lz	Lines number in a logo/frame.	**Rd**	0	65535	
lE	lE	Status of the logo memories	**Rd**	0	1	0 = logo memorized. 1 = empty memory.
lF	lF	Status of the frame memories	**Rd**	0	1	0 = frame memorized. 1 = empty memory.
LE	LE	Luma key level.	Rd/Wr	0	255	
Le	Le	Luma key type	Rd/Wr	0	1	0 = Black 1 = white
Lb	Lb	Background color.	Rd/Wr	0	7	
LR	LR	-In recording mode: frame/logo storing. -In erase mode: frame/logo erasing.	**Rd**	0	1	1 = STORE (automatic reset). 1 = ERASE (automatic reset).
Lr	Lr	Stop the frame storing.	Rd/Wr	0	1	1 = stop the frame storing (automatic reset).
lz	lz	Logo transparency	Rd/Wr	0	15	0 = mini 15 = maxi
Ld	Ld	Fade logo duration (0.01 second step).	Rd/Wr	15	255	15 = 0.15 second 255 = 2.5 seconds

NOTE: **Rd** = Read only command / *Commande de lecture.* Rd/Wr = Read and write command / *Commande de lecture et d'écriture.*

COMMAND *COMMANDE*	RESPONSE *RÉPONSE*	COMMAND DESCRIPTION *DESCRIPTION DE LA COMMANDE*	TYPE	VALUE /*VALEUR*		
				MIN	MAX	DESCRIPTION
COMMUNICATION COMMANDS / *COMMANDES DE COMMUNICATION*						
ne	ne	Communication port selection	Rd/Wr	0	1	0 = RS232 1 = LAN
nr	nr	Reset of the LAN parameters.	Rd/Wr	0	1	1 = reset.
ns	ns	Store the LAN parameters.	Rd/Wr	0	1	1 = store.
na	na	IP address and port selection (for modification)	Rd/Wr	0	3	0 = all IP address / ports 1 = IP local address / local port 2 = IP remote address / remote port 3 = IP gateway address.
nw	nw	First byte of the address selected by the **na** command.	Rd/Wr	0	255	
nx	nx	Second byte of the address selected by the **na** command.	Rd/Wr	0	255	
ny	ny	Third byte of the address selected by the **na** command.	Rd/Wr	0	255	
nz	nz	Forth byte of the address selected by the **na** command.	Rd/Wr	0	255	
np	np	Number of the port (local or remote) selected by the **na** command.	Rd/Wr	0	65500	local port: 10000 to 10999. remote port: 0 to 65500.
nk	nk	netmask.	Rd/Wr	0	24	Value = number of bit to 0 (from right). example: 2 ▸ 255.255.255.252 3 ▸ 255.255.255.248 ..... 8 ▸ 255.255.255.0..... 24 ▸ 255.0.0.0
nt	TCP	protocol selection.	Rd/Wr	0	1	0 = UDP 1 = TCP
CONTROLS COMMANDS / *COMMANDES DE CONTRÔLE*						
xU	xU	Device version	**Rd**	0	65535	The value is displayed in decimal and should be converting in hexadecimal to obtain the version. Example: xU262 ▸ 262 (dec) = 106 (hex) 106 = Version 1.06
ZT	ZT	Zoom type	Rd/Wr	0	1	0 = Direct zoom 1 = Dynamic zoom
YL	YL	Auto frame	Rd/Wr	0	1	0 = OFF 1 = ON
YK	YK	Front panel locking selection.	Rd/Wr	0	3	0 = unlocks all buttons. 1 = locks Menu buttons. 3 = locks all buttons
ws	ws	Standby function (ON/OFF)	Rd/Wr	0	1	0 = ON 1 = OFF
wt	wt	Stand by time	Rd/Wr	0	8	0 = 0 second 1 = 1 min 2 = 5 min 3 = 10 min 4 = 15 min 5 = 30 min 6 = 60 min 7 = 90 min 8 = 120 min
wm	wm	Standby mode activation	Rd/Wr	0	2	0 = Sync.loss 1 = Standby time 2 = Sync. loss + time
YE	YE	Erase memories	Rd/Wr	0	1	1 = set all the parameters to the default value (automatic reset).
YR	YR	Default value.	Rd/Wr	0	1	1 = erase all memories (automatic reset).

NOTE: **Rd** = Read only command / *Commande de lecture.* Rd/Wr = Read and write command / *Commande de lecture et d'écriture.*

COMMAND *COMMANDE*	RESPONSE *RÉPONSE*	COMMAND DESCRIPTION *DESCRIPTION DE LA COMMANDE*	TYPE	VALUE /*VALEUR*		
				MIN	MAX	DESCRIPTION
STATUS COMMANDS / COMMANDES D'ETAT						
IK	IK	Input sync type detection	**Rd**	0	3	0 = separate H & V 1 = Composite sync (TTL) 2 = SOG (Sync On Green) 3 = Composite sync (analog)
II	II	Interlaced signal detection.	**Rd**	0	1	0 = not interlaced 1 = interlaced
IO	IO	Status of the signal in comparison with the input range frequency.	**Rd**	0	1	0 = in range 1 = out of range
IF	IF	Input format detection	**Rd**	0	25	0 = No signal 1= Wrong signal 4 = 640x480 5 = 480p 6 = 852x480 7 = 800x600 8 = 1280x720 9 = 720p 10 = 10274x768 11 = 1280x768 12 = 1366x768 13 = 1280x800
XF	XF	Status of the synchronized format (genlock).	**Rd**	0	25	14 = 1280x960 15 = 1280x1024 16 = 1364x1024 17 = 1035i 18 = 1400x1050 19 = 1680x1050 20 = 1920x1080 21 = 1080i 22 = 1080sf 23 = 1080p 24 = 1600x1200 25 = 1920x1200
XA	XA	Status of the synchronization mode	**Rd**	0	3	0 = internal 1 = genlock 2 = frame lock 3 = wrong signal.
XT	XT	Frame frequency of the synchronized signal (genlock) (in hundredth of Hz)	**Rd**	0	65535	
CC	CC	Selected Input	**Rd**	1	2	1 = Source 2 = Frame
?	DEV	Device model	**Rd**	59	63	59 = BHD930-DG 60 = BHD930-AG 61 = BSD830-DG 62 = BSD830-AG 63 = BSC730

NOTE: **Rd** = Read only command / *Commande de lecture.* Rd/Wr = Read and write command / *Commande de lecture et d'écriture.*

A-5: ASCII / HEX / DEC TABLE **A-5: TABLE ASCII / HEX / DEC**

ASCII	HEX	DEC	ASCII	HEX	DEC	ASCII	HEX	DEC
space	20	32	@	40	64	`	60	96
!	21	33	A	41	65	a	61	97
"	22	34	B	42	66	b	62	98
#	23	35	C	43	67	c	63	99
$	24	36	D	44	68	d	64	100
%	25	37	E	45	69	e	65	101
&	26	38	F	46	70	f	66	102
’	27	39	G	47	71	g	67	103
(	28	40	H	48	72	h	68	104
)	29	41	I	49	73	i	69	105
*	2A	42	J	4A	74	j	6A	106
+	2B	43	K	4B	75	k	6B	107
,	2C	44	L	4C	76	l	6C	108
-	2D	45	M	4D	77	m	6D	109
.	2E	46	N	4E	78	n	6E	110
/	2 F	47	O	4F	79	o	6F	111
0	30	48	P	50	80	p	70	112
1	31	49	Q	51	81	q	71	113
2	32	50	R	52	82	r	72	114
3	33	51	S	53	83	s	73	115
4	34	52	T	54	84	t	74	116
5	35	53	U	55	85	u	75	117
6	36	54	V	56	86	v	76	118
7	37	55	W	57	87	w	77	119
8	38	56	X	58	88	x	78	120
9	39	57	Y	59	89	y	79	121
:	3A	58	Z	5A	90	z	7A	122
;	3B	59	[	5B	91	{	7B	123
<	3C	60	\	5C	92	|	7C	124
=	3D	61	]	5D	93	}	7D	125
>	3E	62	^	5E	94	~	7E	126
?	3F	63	_	5F	95	DEL	7F	127

WARRANTY

Analog Way warrants the product against any defects in materials and workmanship for a period of three years from the date of purchase (back to the factory).

In the event of any malfunction during the warranty period, Analog Way will, at its discretion, repair or replace the defective units, including free materials and labor.

This warranty does not apply if the product has been:
- improperly installed or abused,
- handled with improper care,
- used or stocked in abnormal conditions,
- modified, opened,
- damaged by fire, war, or Natural disasters (Acts of God).

In no way shall Analog Way be responsible for direct or indirect loss of profit or consequential damages resulting from any defect in this product.

In case of any problem, get the serial number of the unit, a description of the problem, and then call your authorized dealer.